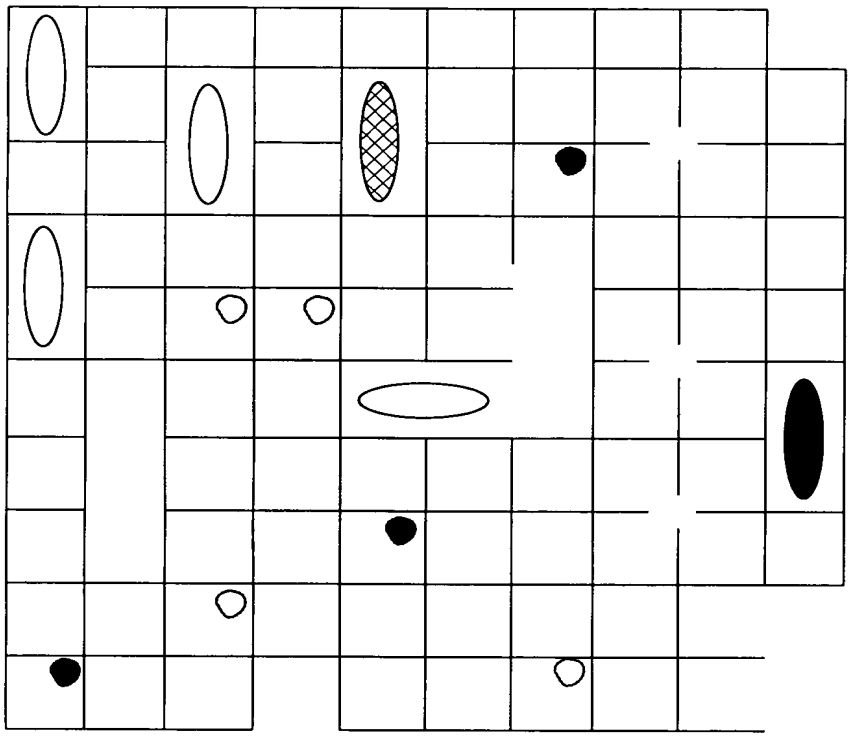


FIG. 1B

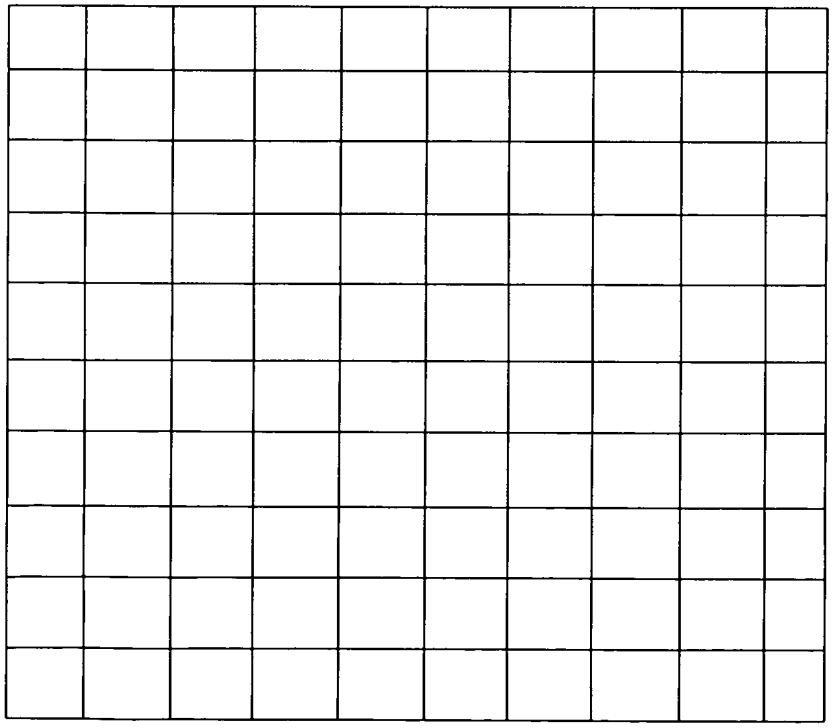


FIG. 1A

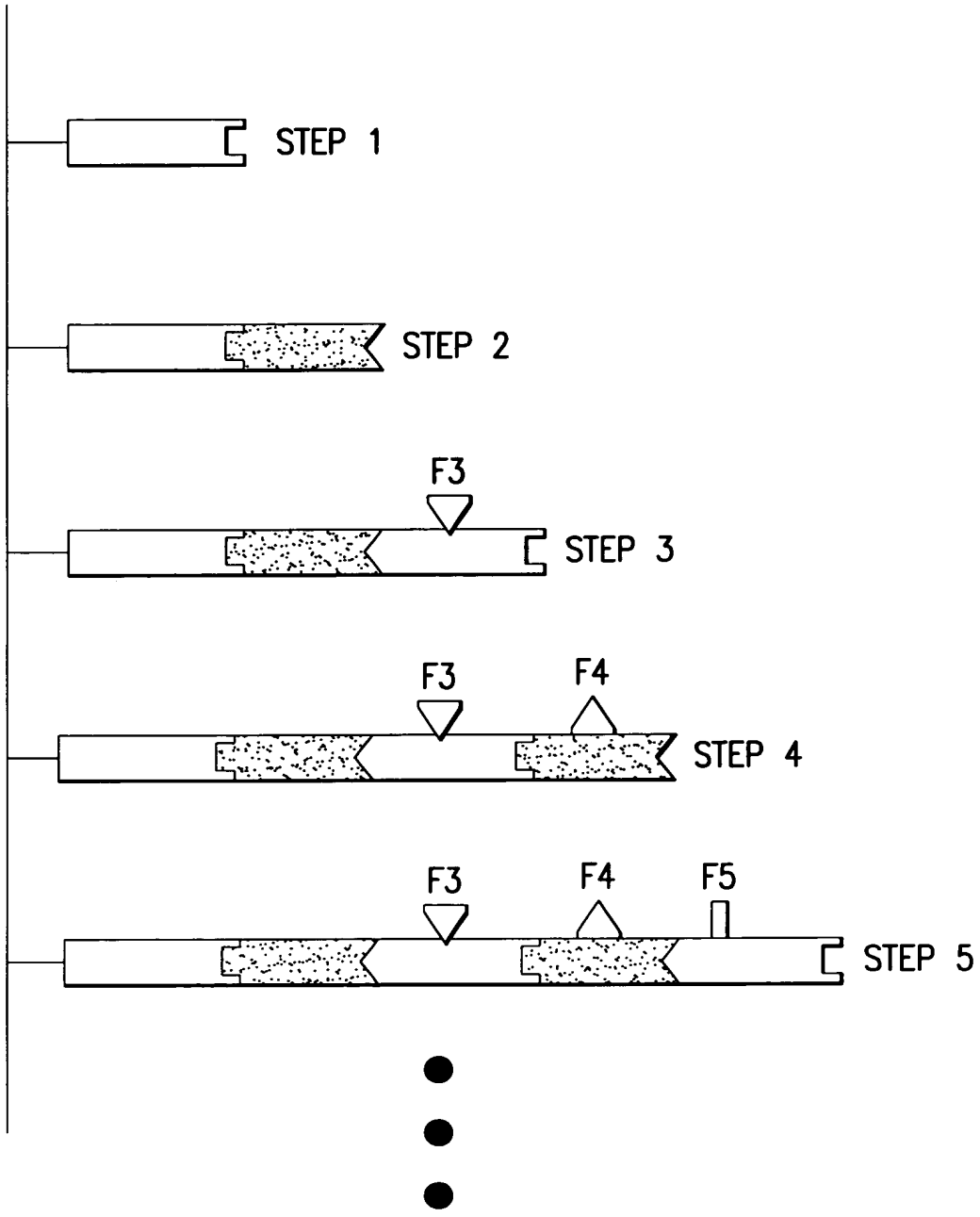


FIG.2

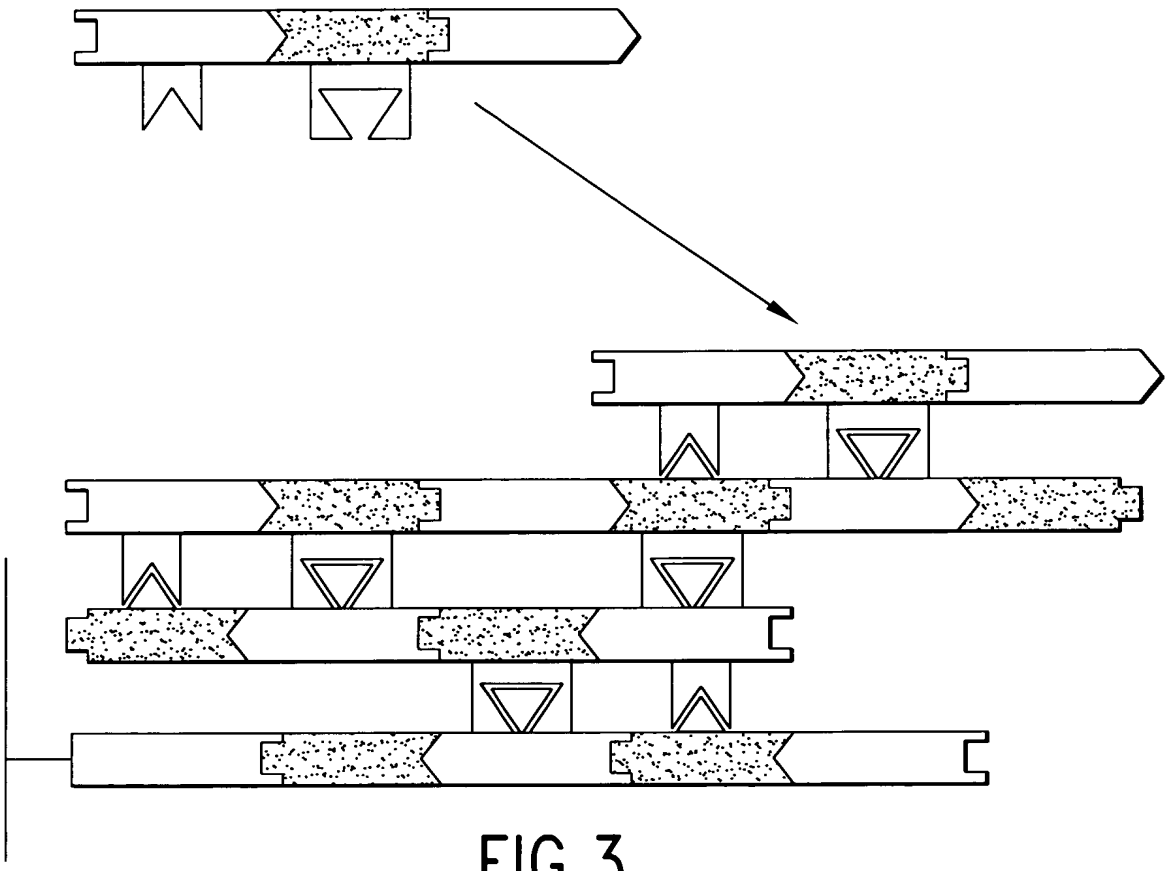


FIG.3

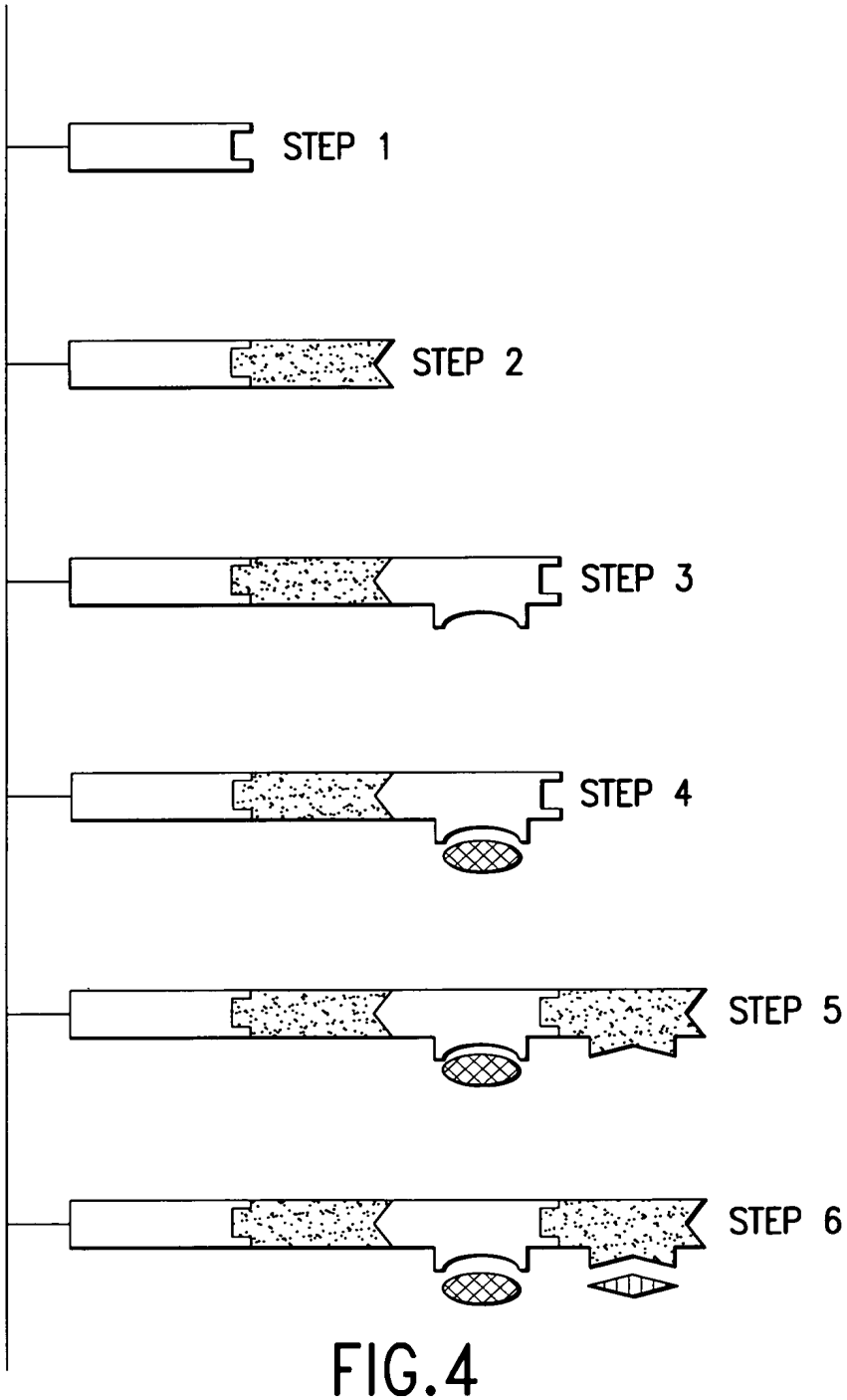


FIG.4

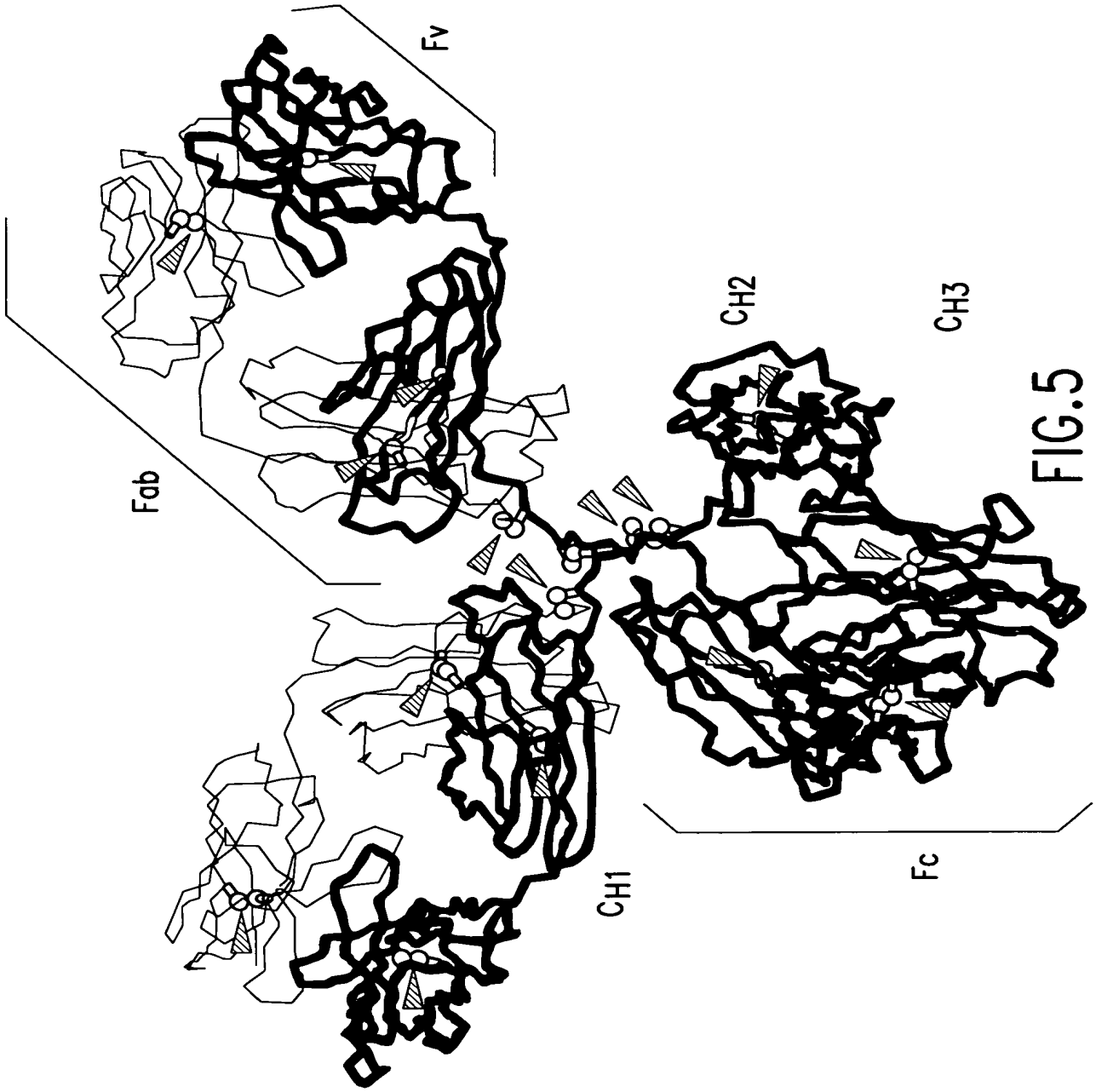


FIG.5

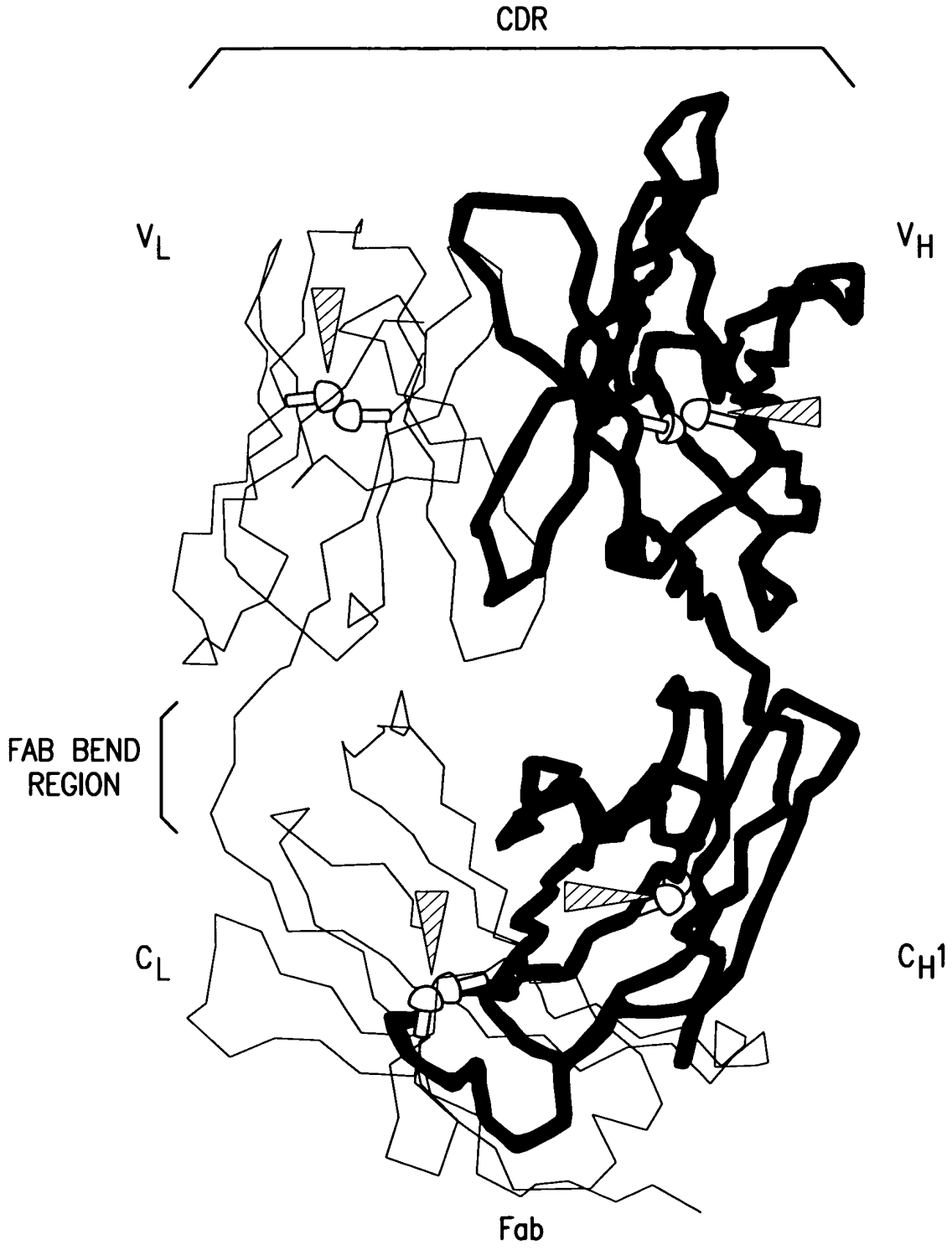


FIG.6

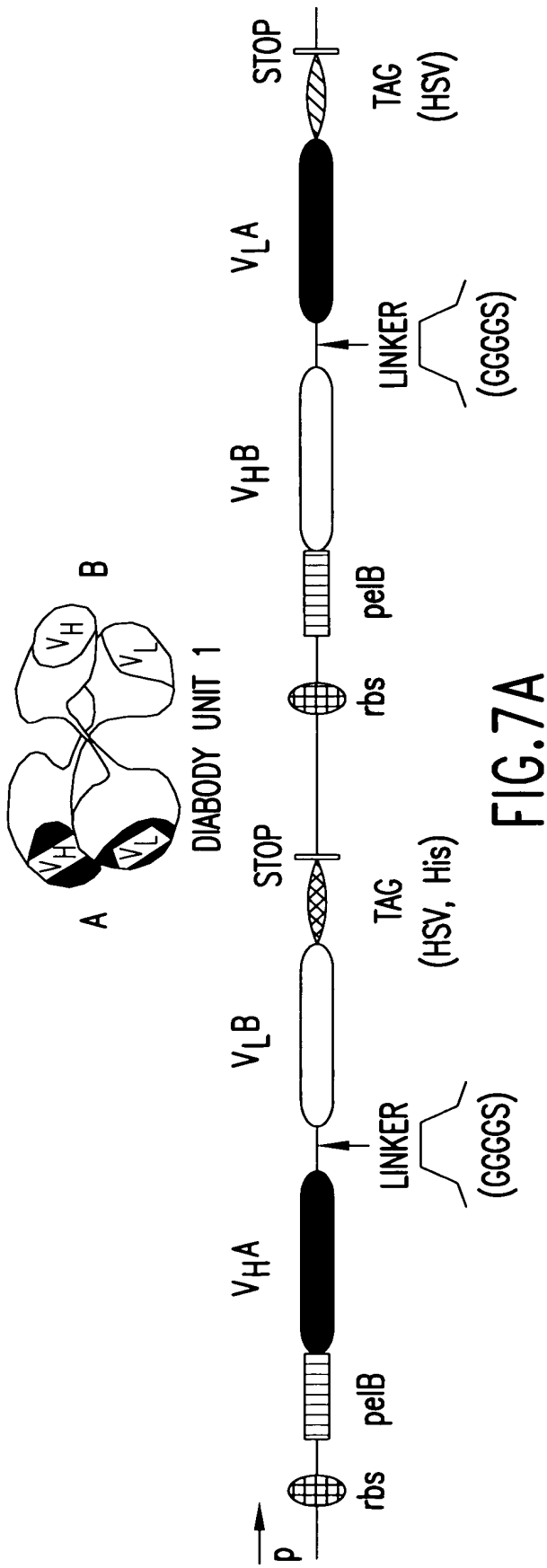

A
B
DIABODY UNIT 1
p
rbs
pelB
V_HA
LINKER
(GGGGS)
V_LB
STOP
TAG
(HSV, His)
V_HB
V_LA
STOP
TAG
(HSV)

FIG.7A

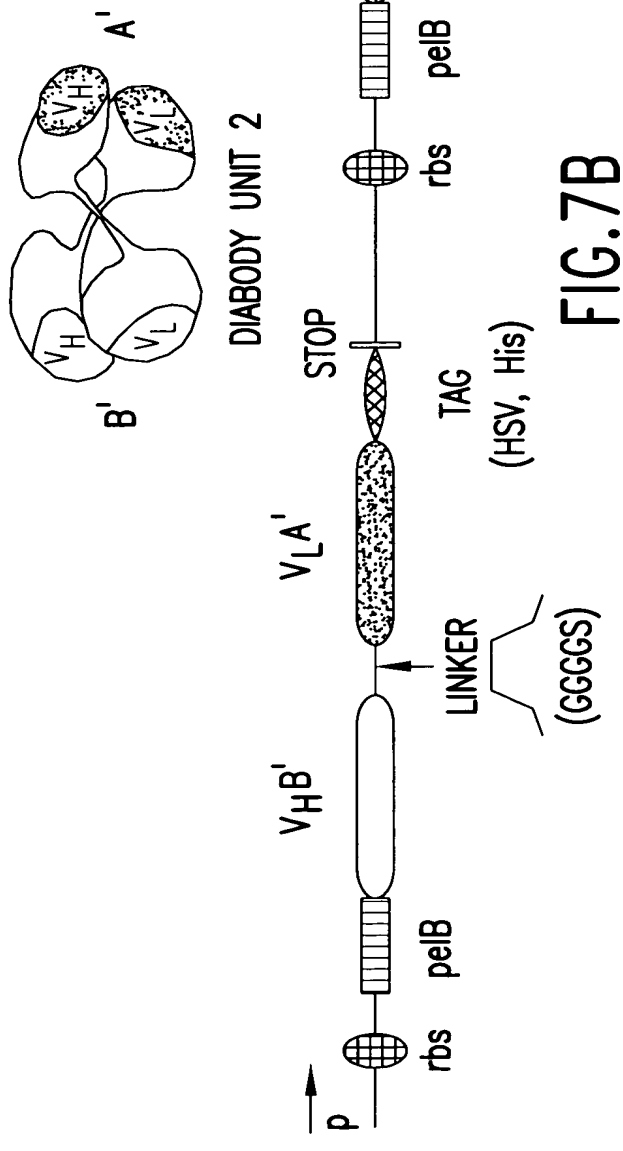
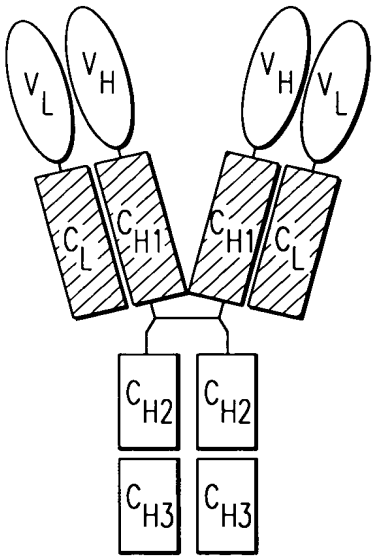

A'
B'
DIABODY UNIT 2
p
rbs
pelB
V_HB'
LINKER
(GGGGS)
V_LA'
STOP
TAG
(HSV, His)
V_HA'
V_LB'
STOP
TAG
(HSV)

FIG.7B

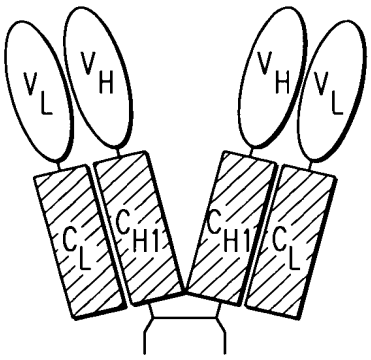
DIABODY

scFv

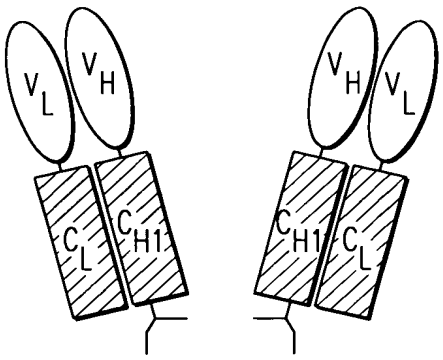
FIG.8



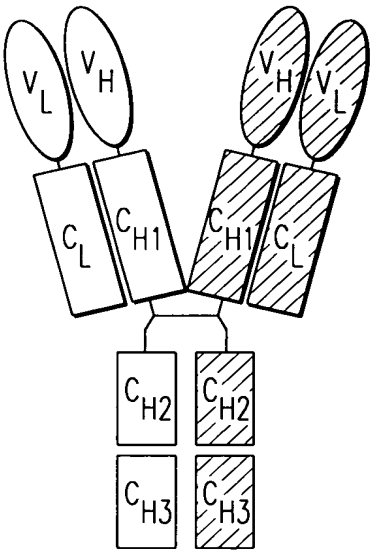
IgG
BIVALENT–MONOSPECIFIC



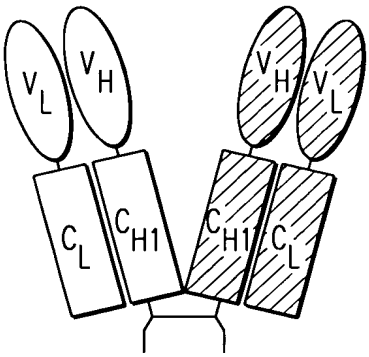
$F(ab')_2$
BIVALENT–MONOSPECIFIC



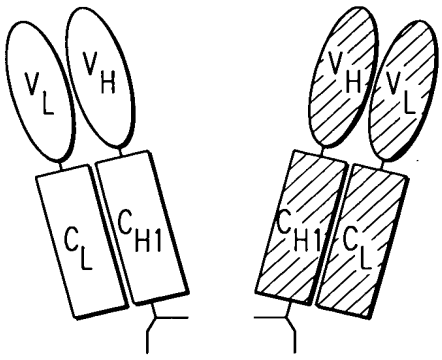
Fab
MONOSPECIFIC



QUADROMA
BIVALENT–BISPECIFIC



HETEROLOGOUS–$F(ab')_2$
BIVALENT–BISPECIFIC



Fab
MONOSPECIFIC

FIG.9

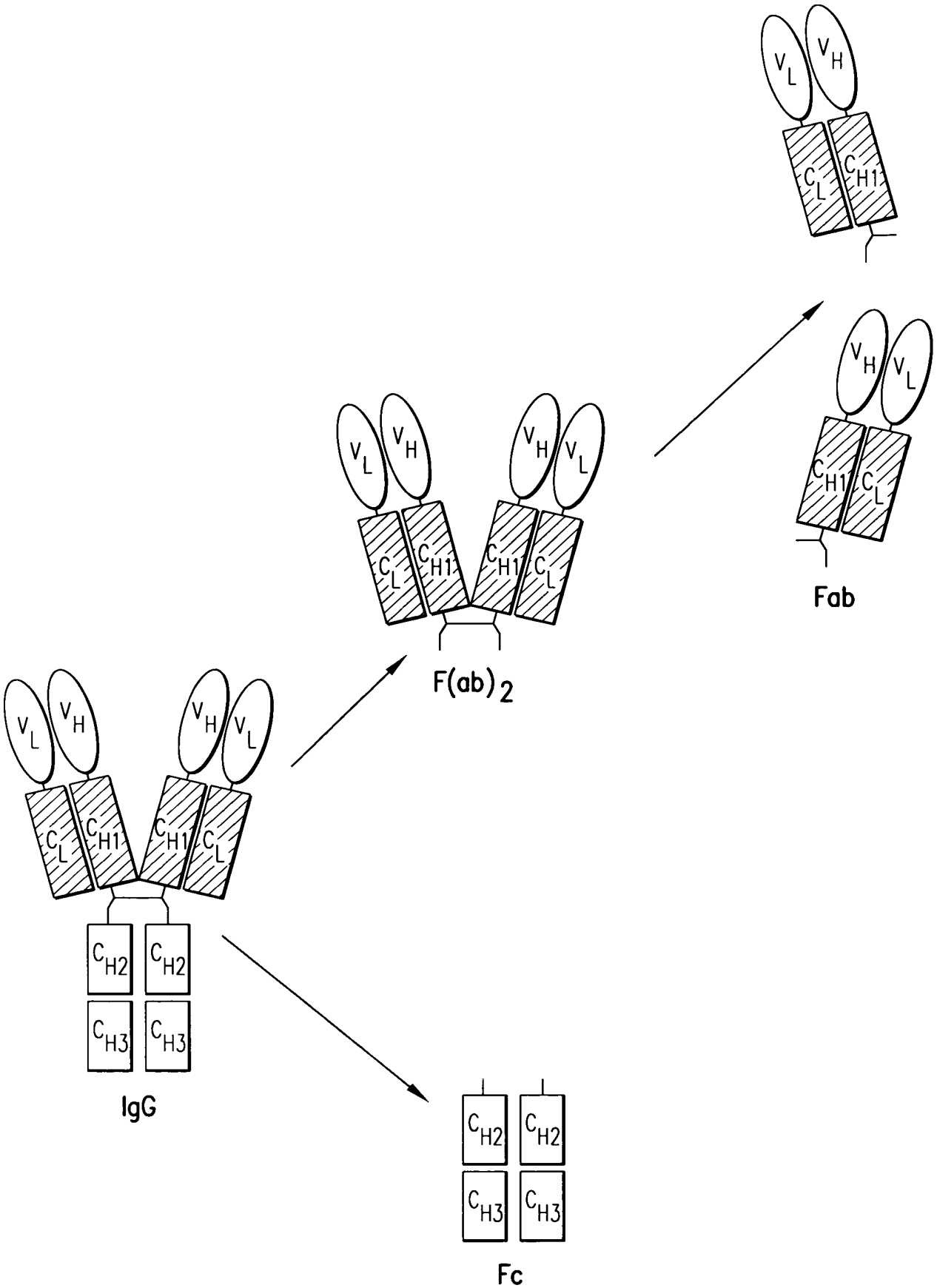


FIG.10

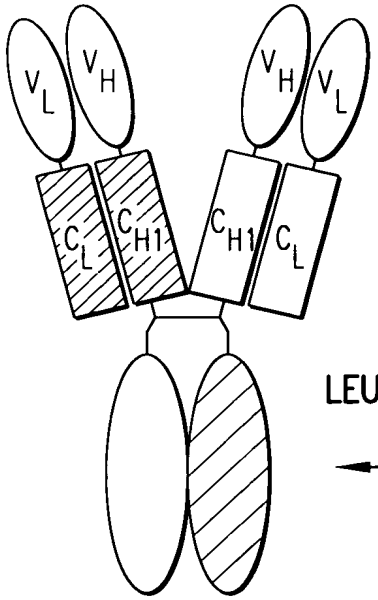


FIG.11A

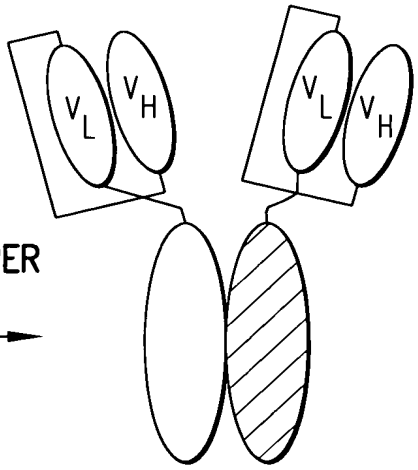


FIG.11B

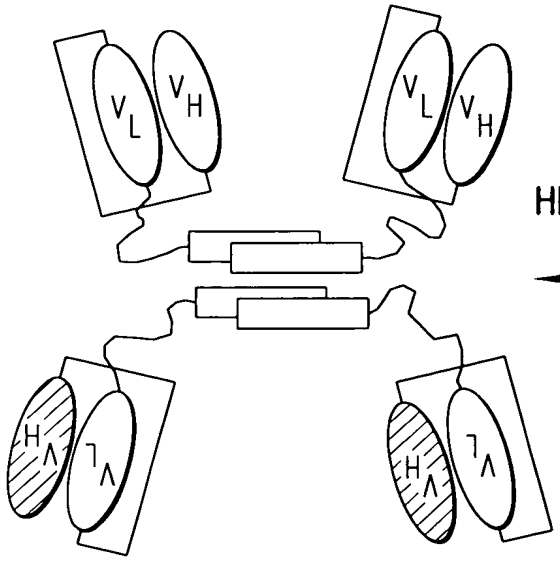


FIG.11C

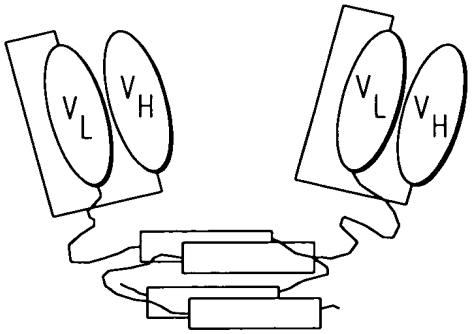


FIG.11D

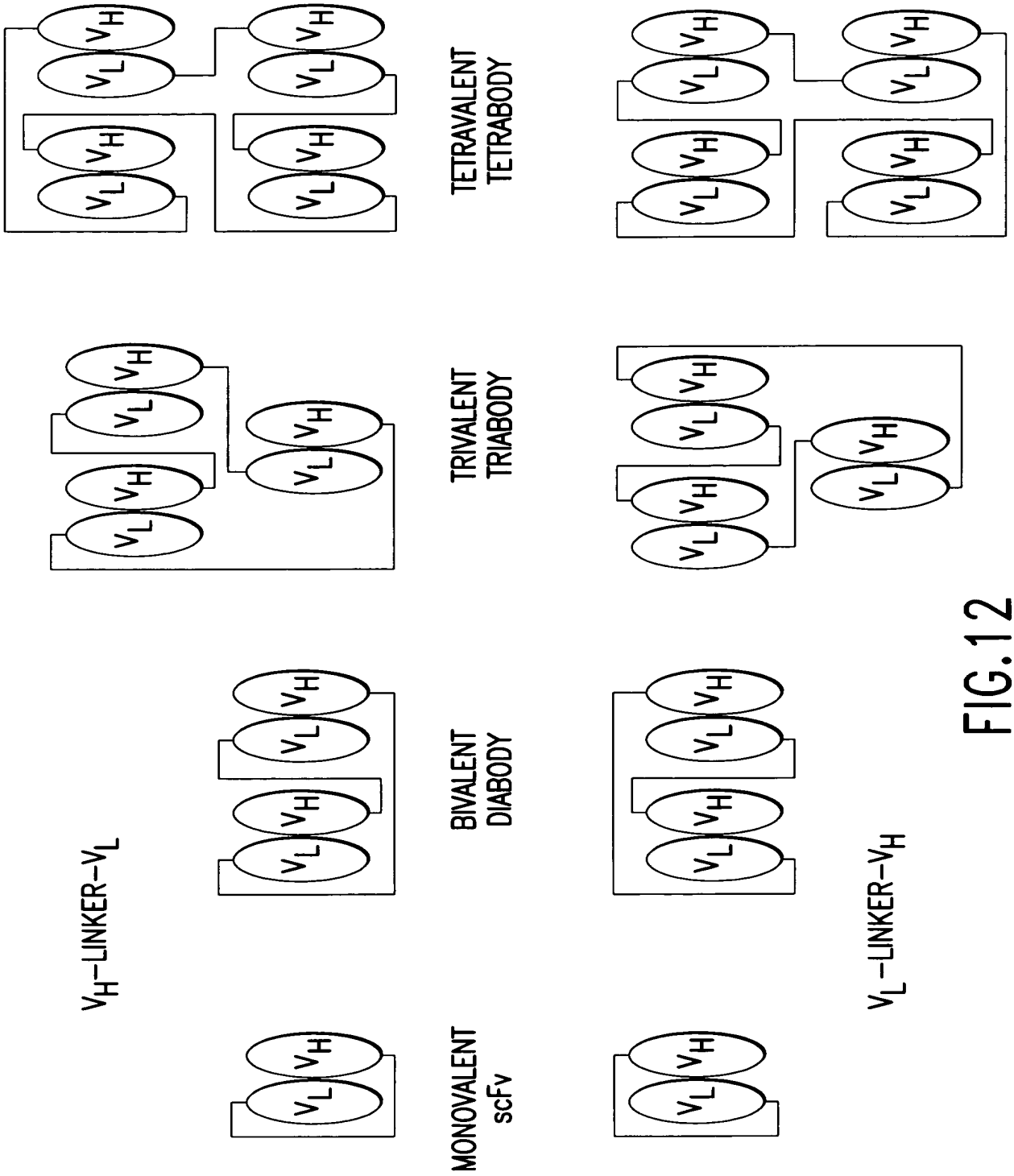

V_H-LINKER-V_L
V_L-LINKER-V_H
MONOVALENT scFv
BIVALENT DIABODY
TRIVALENT TRIABODY
TETRAVALENT TETRABODY

FIG.12

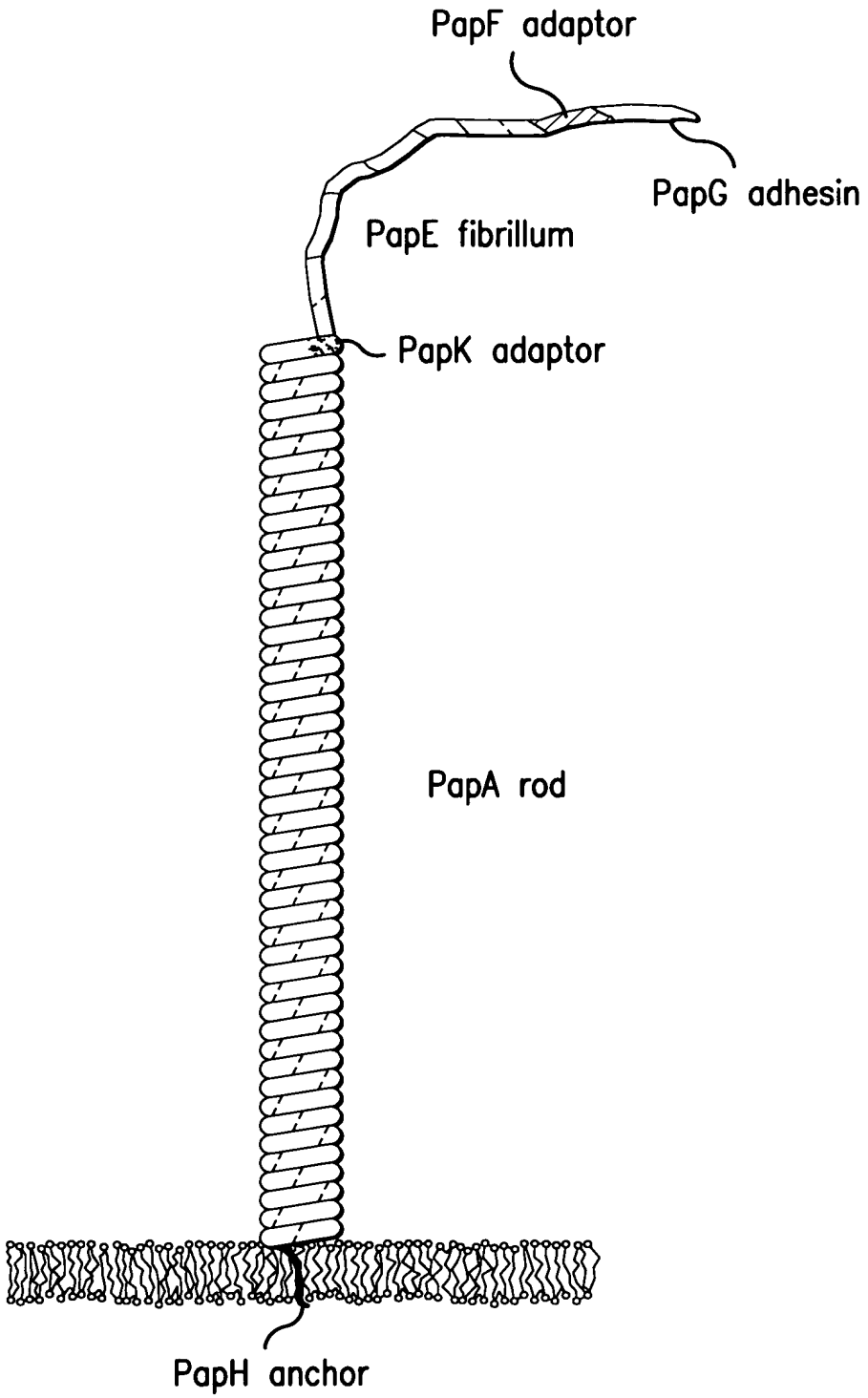

PapF adaptor
PapG adhesin
PapE fibrillum
PapK adaptor
PapA rod
PapH anchor

FIG.13

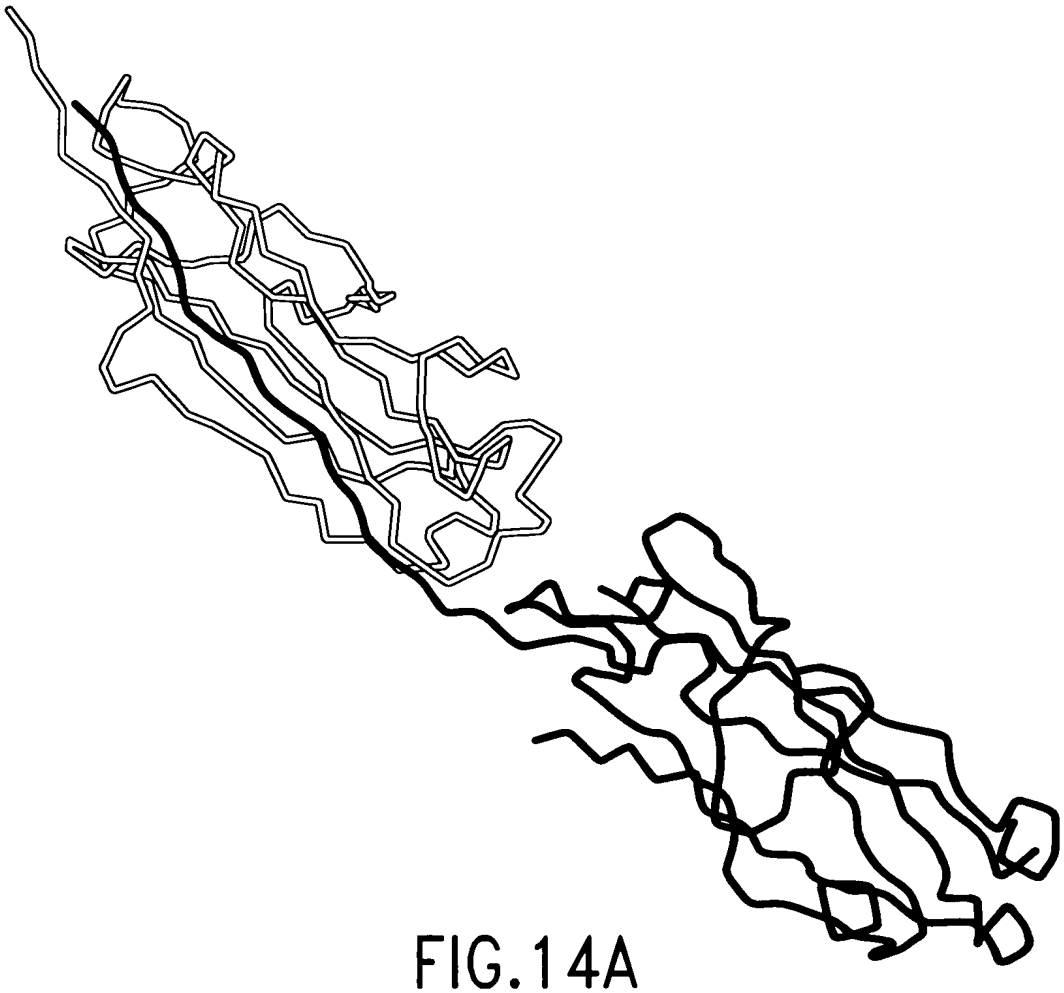


FIG.14A

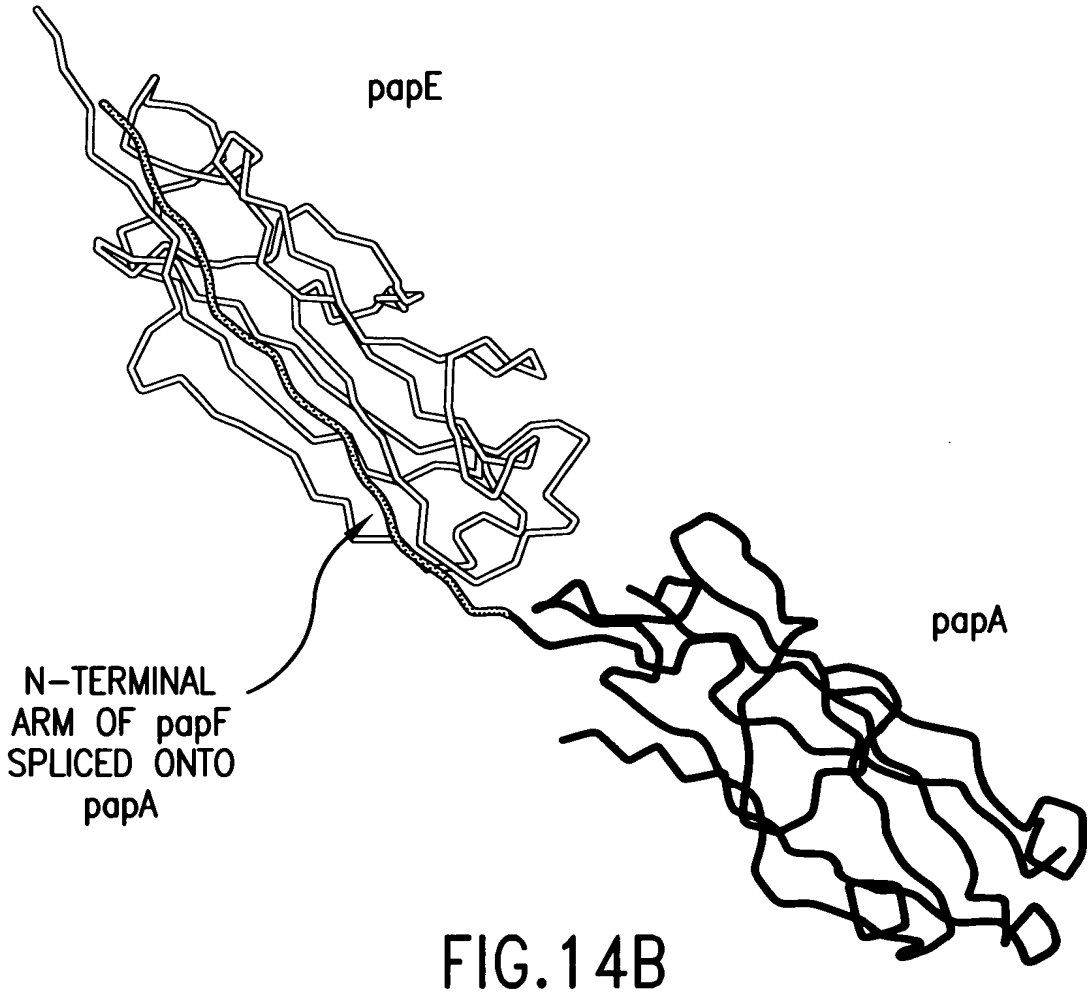


FIG.14B

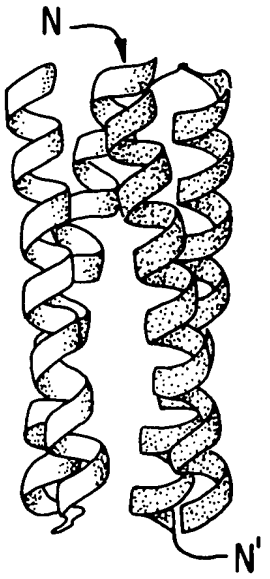


FIG. 15

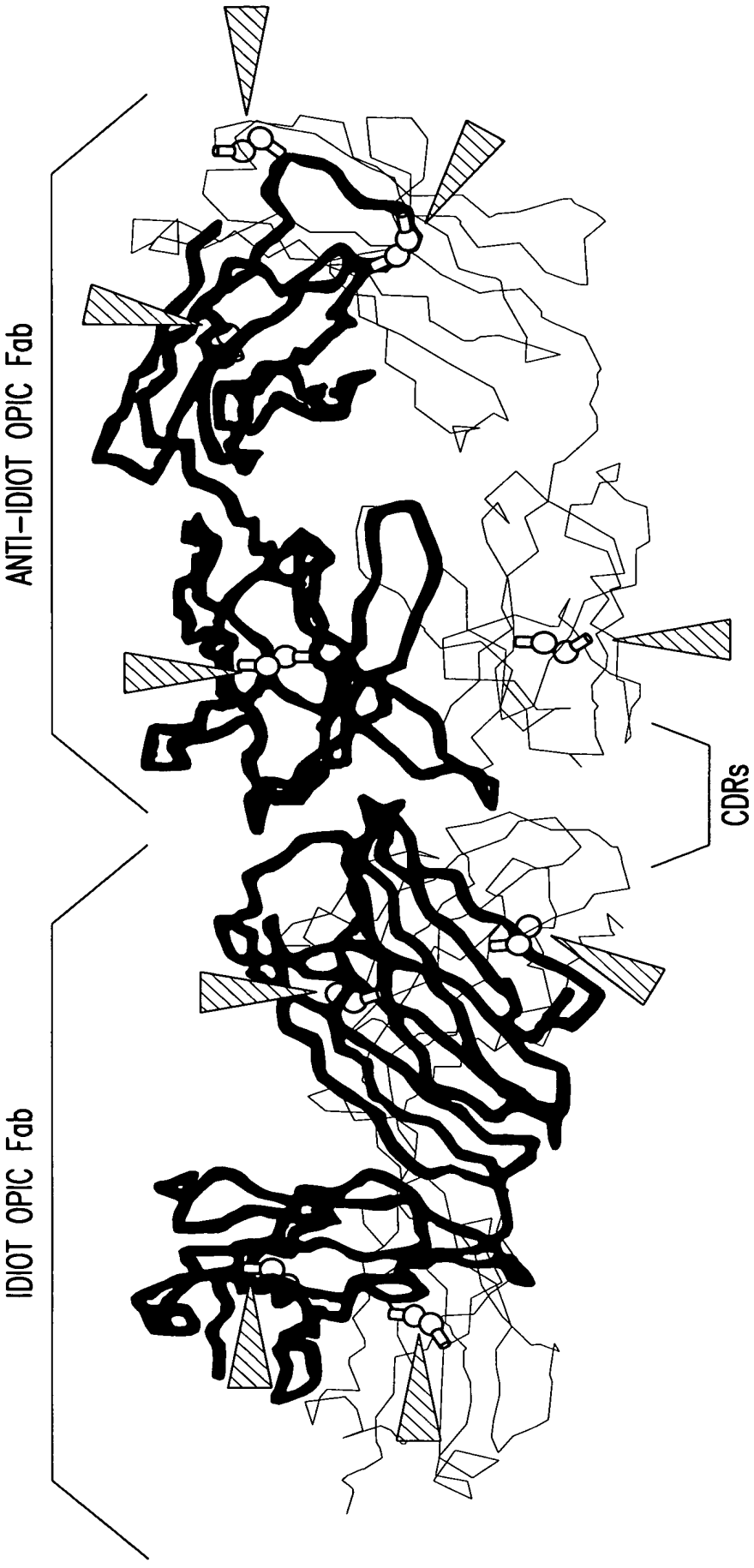


FIG.16

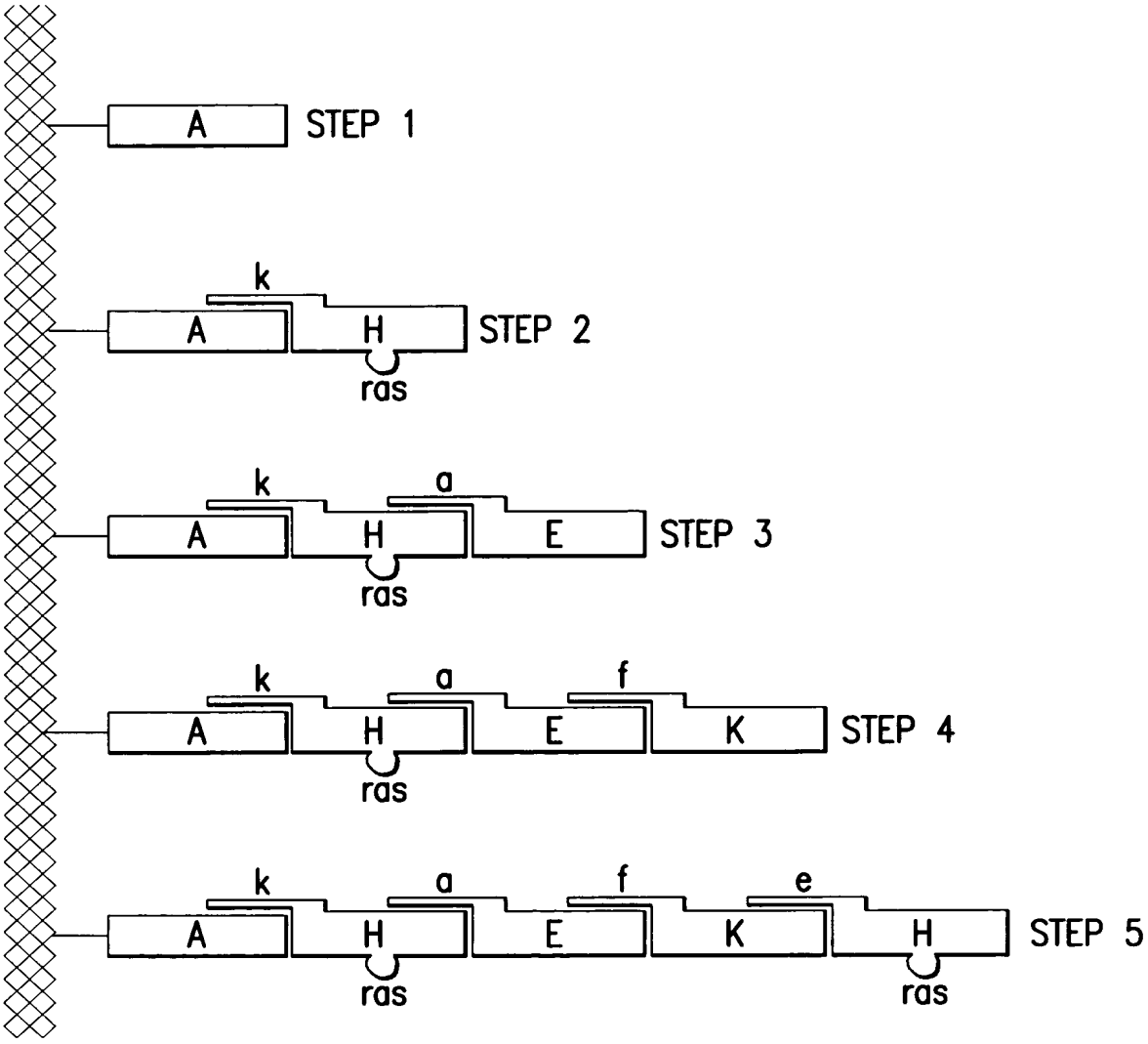

A
STEP 1
k
A
H
ras
STEP 2
k
a
A
H
E
ras
STEP 3
k
a
f
A
H
E
K
ras
STEP 4
k
a
f
e
A
H
E
K
H
ras
ras
STEP 5

FIG.17

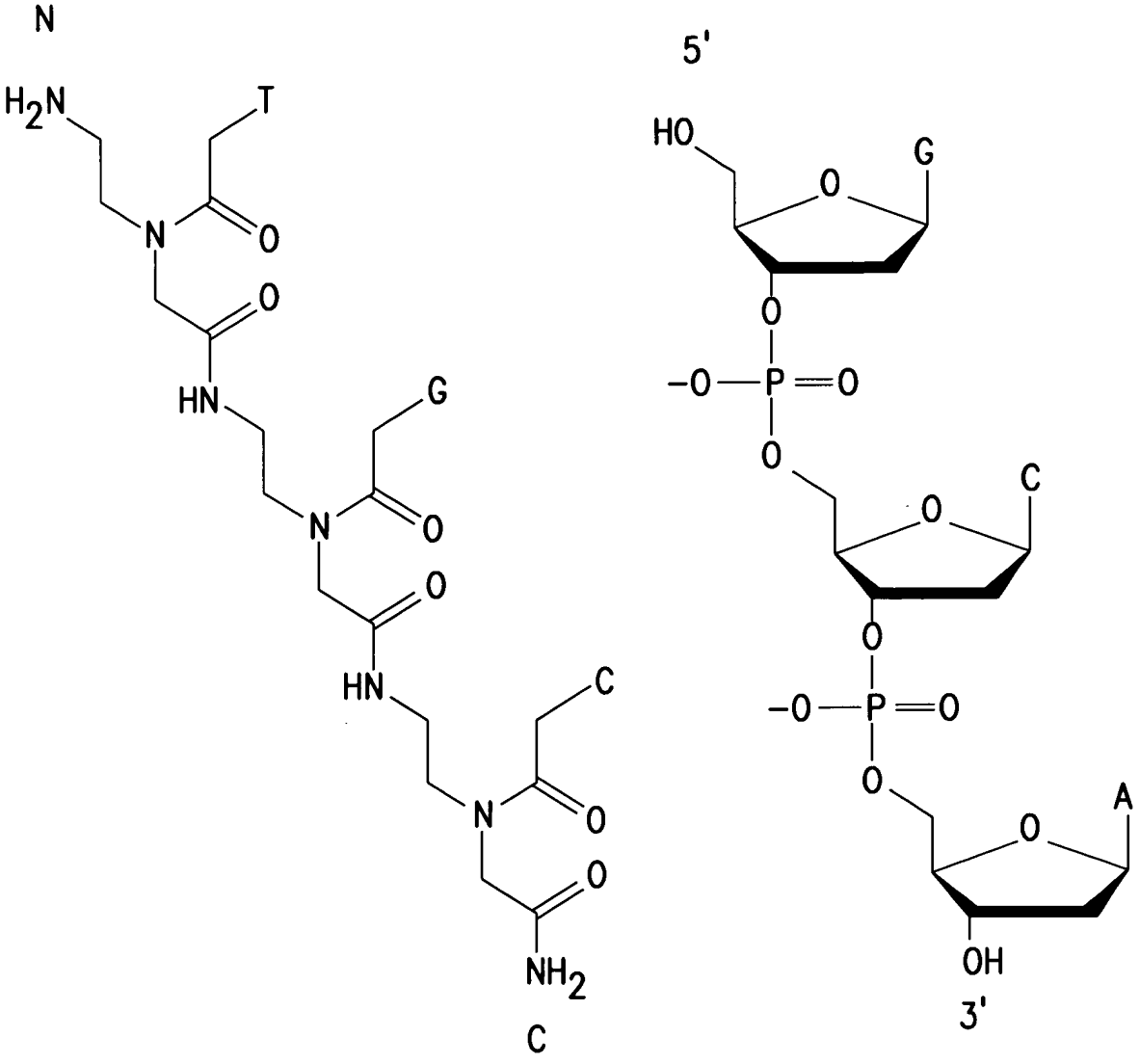


FIG.18

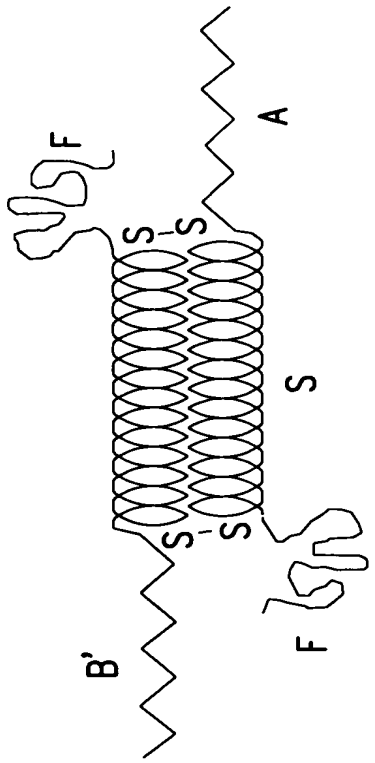


FIG.19B

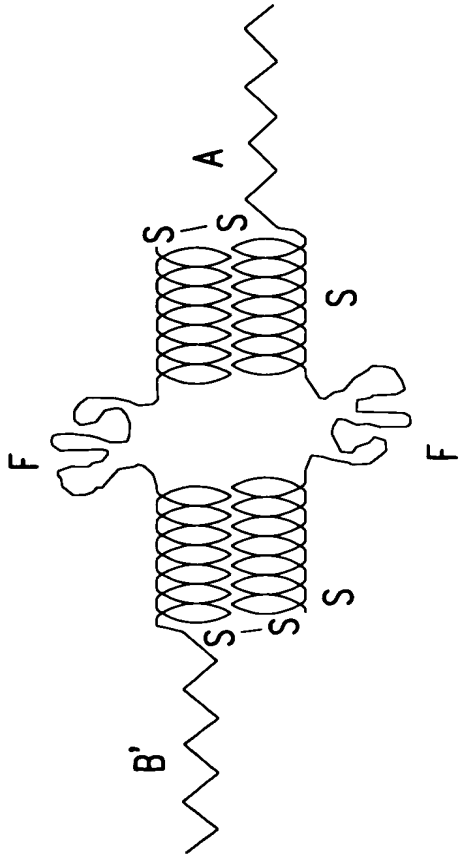


FIG.19A

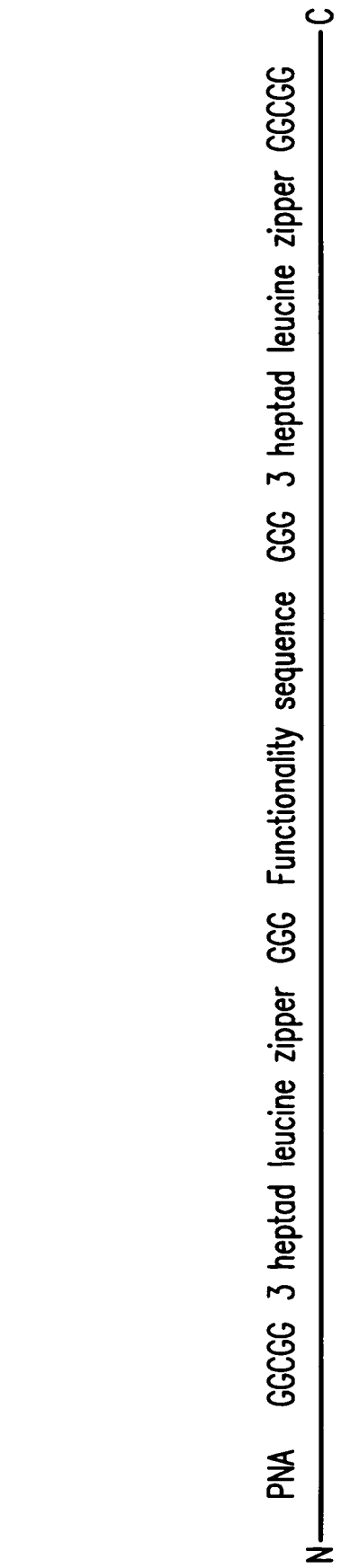

N
C
PNA
GCCGG 3 heptad leucine zipper GGG Functionality sequence GGG 3 heptad leucine zipper GGCGG
10
5
21
3
15
3
21
5

FIG.20

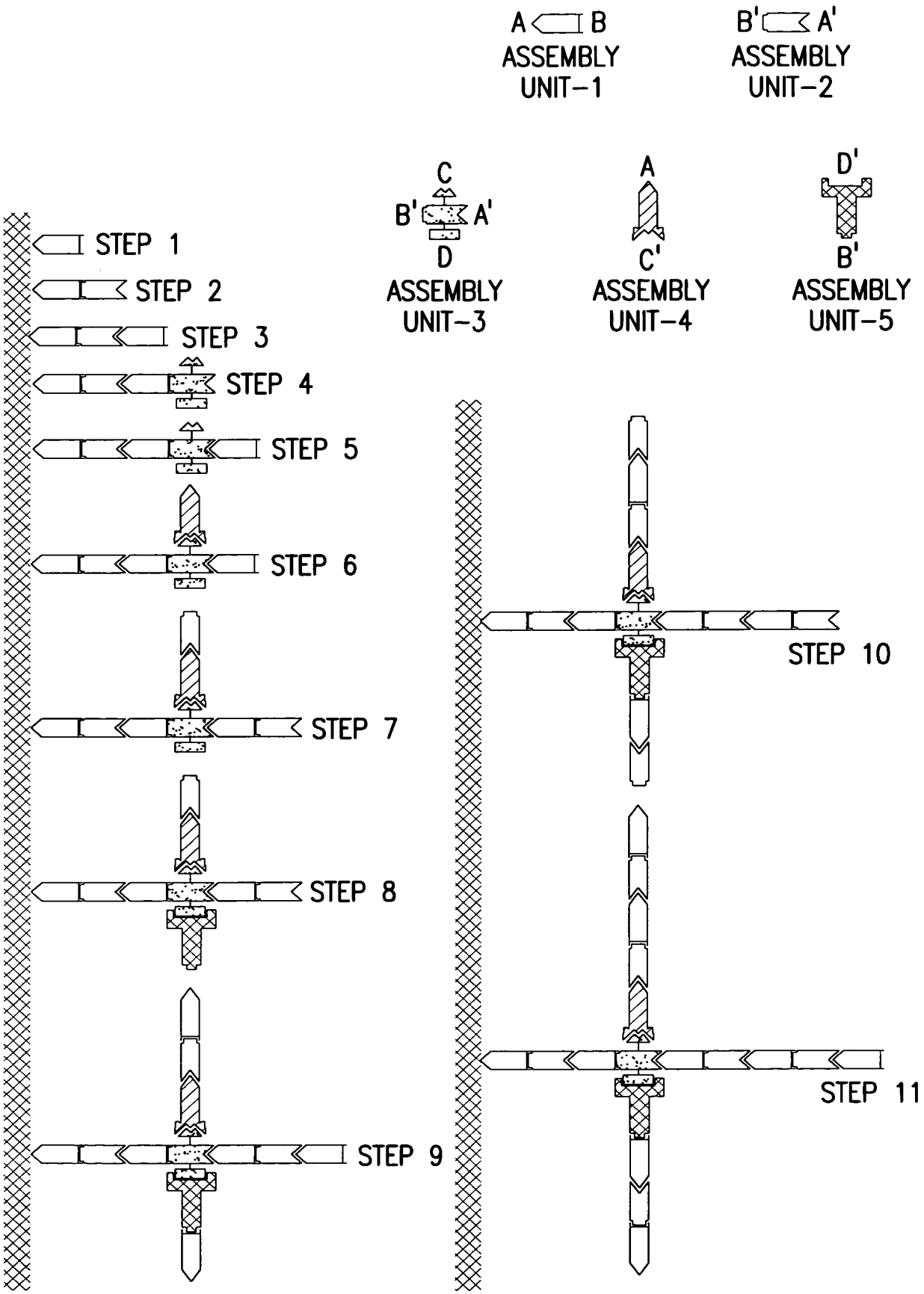

A B
ASSEMBLY
UNIT-1
B' A'
ASSEMBLY
UNIT-2
C
B' A'
D
ASSEMBLY
UNIT-3
A
C'
ASSEMBLY
UNIT-4
D'
B'
ASSEMBLY
UNIT-5
STEP 1
STEP 2
STEP 3
STEP 4
STEP 5
STEP 6
STEP 7
STEP 8
STEP 9
STEP 10
STEP 11

FIG.21

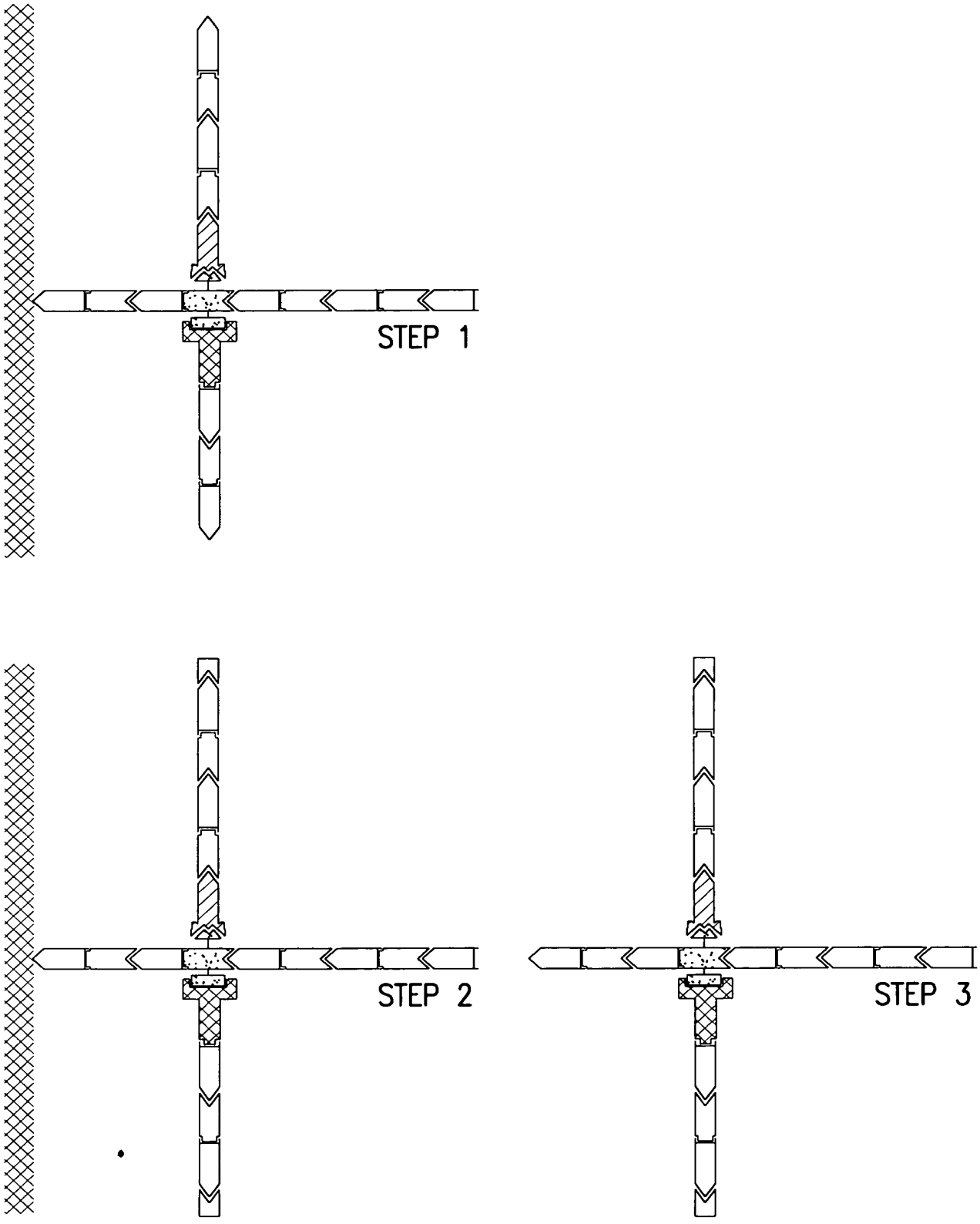


FIG.22A

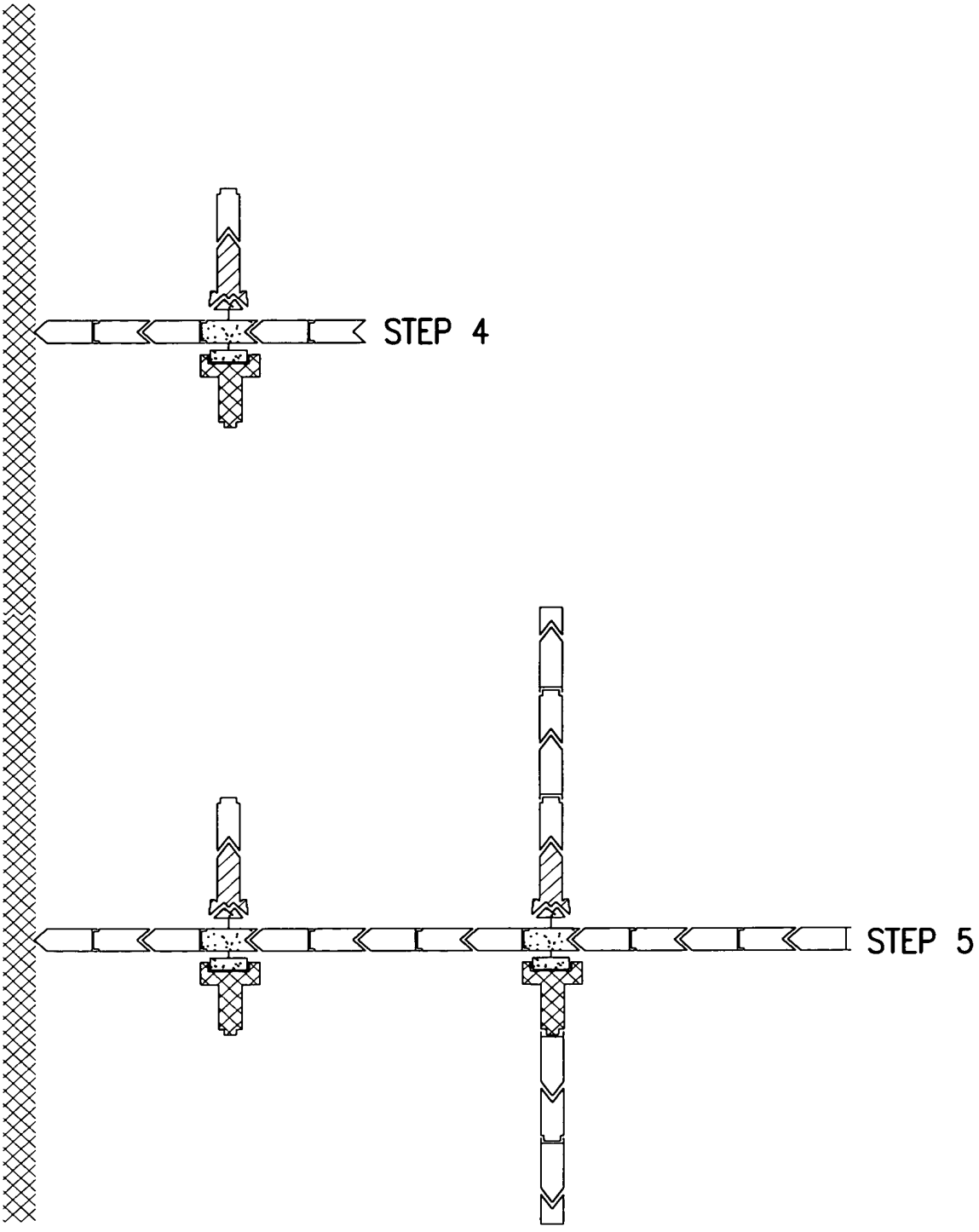


FIG.22B

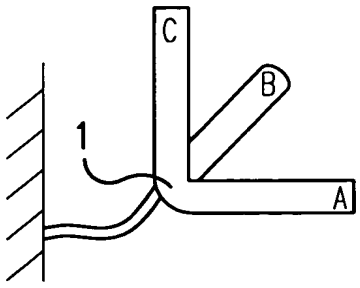


FIG.23AA

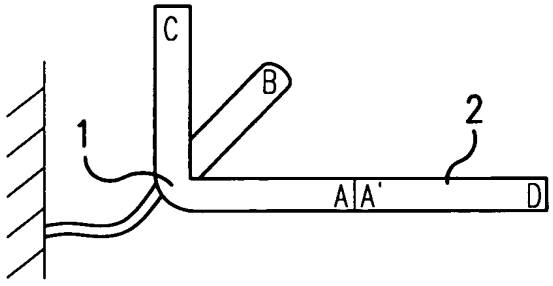


FIG.23AB

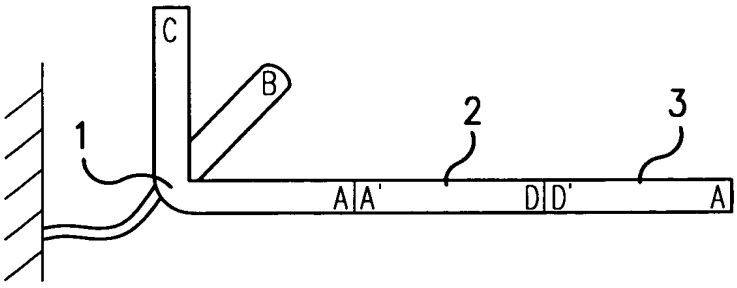


FIG.23AC

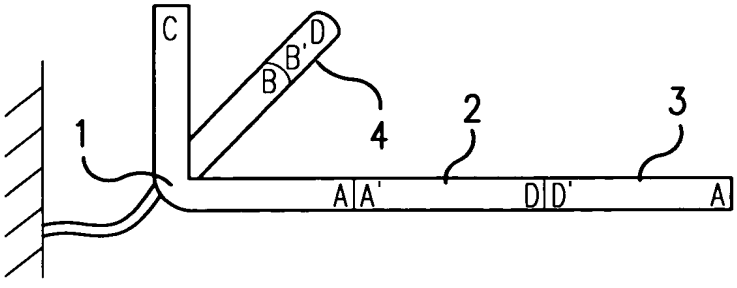


FIG.23AD

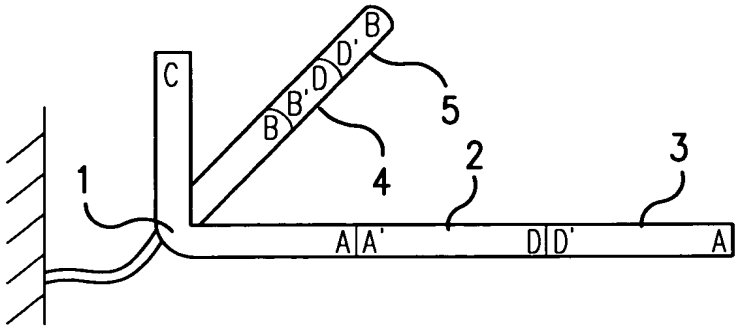


FIG.23AE

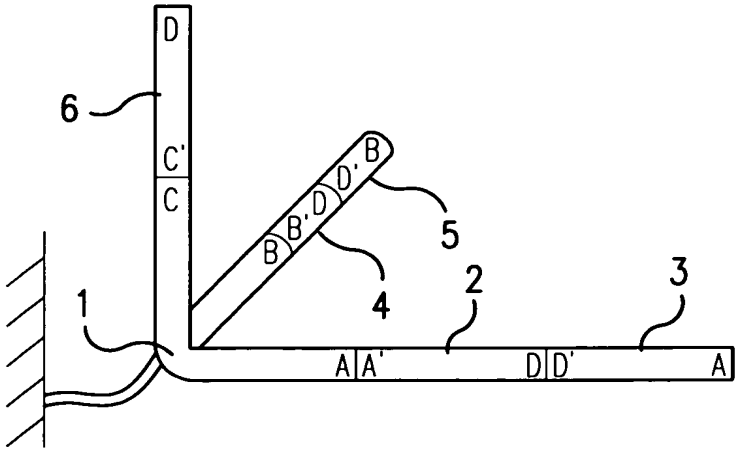


FIG.23AF

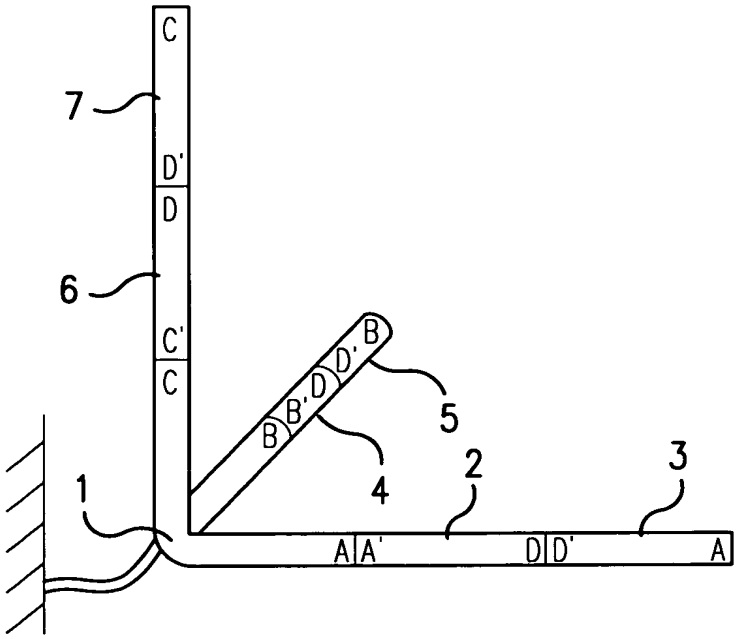


FIG.23AG

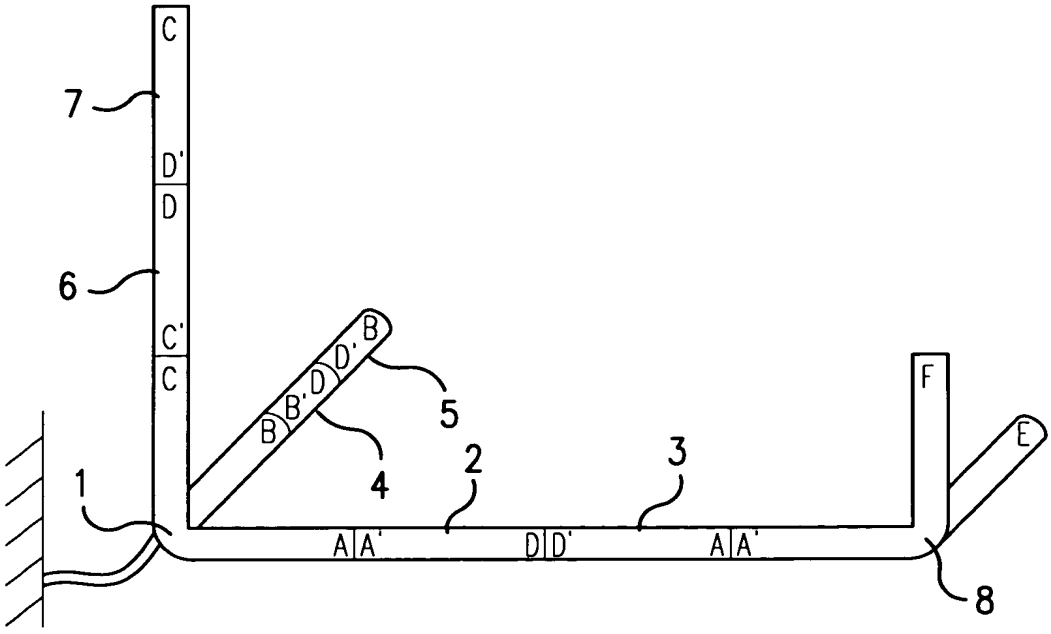


FIG.23AH

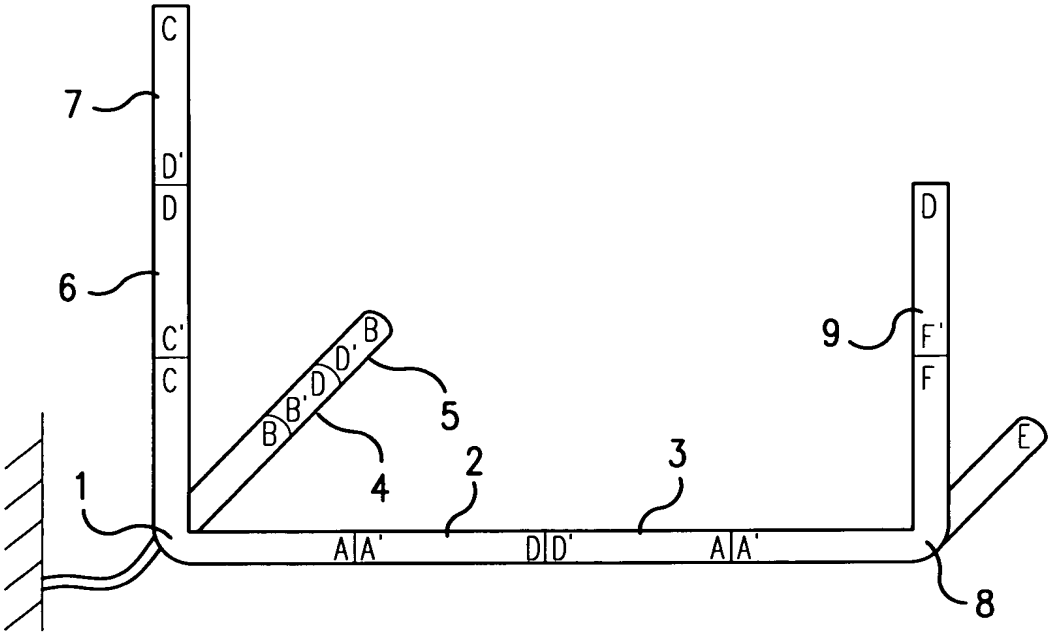


FIG.23AI

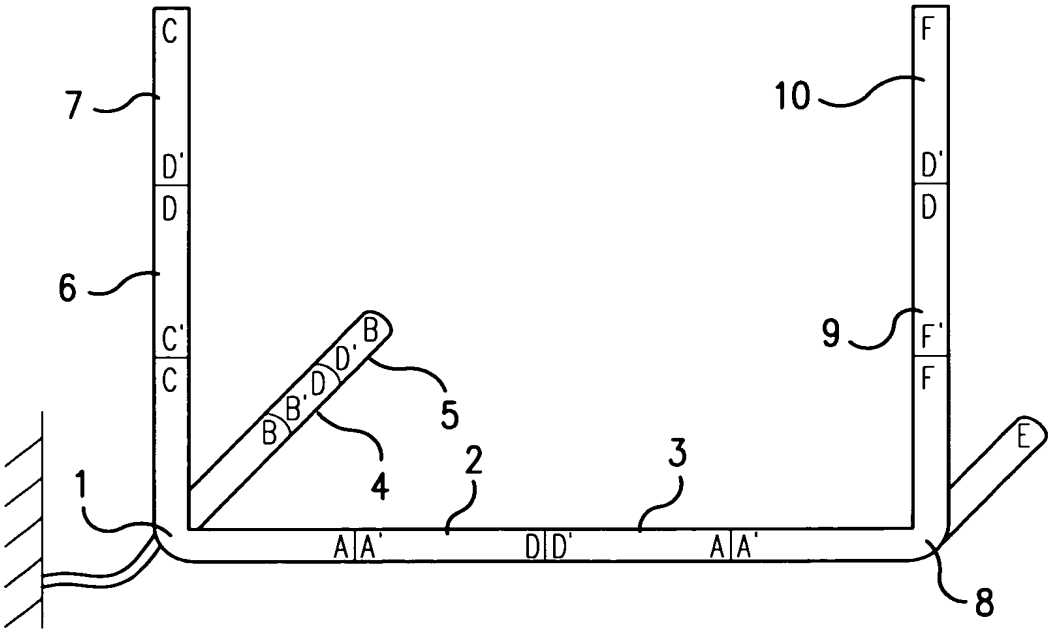


FIG.23AJ

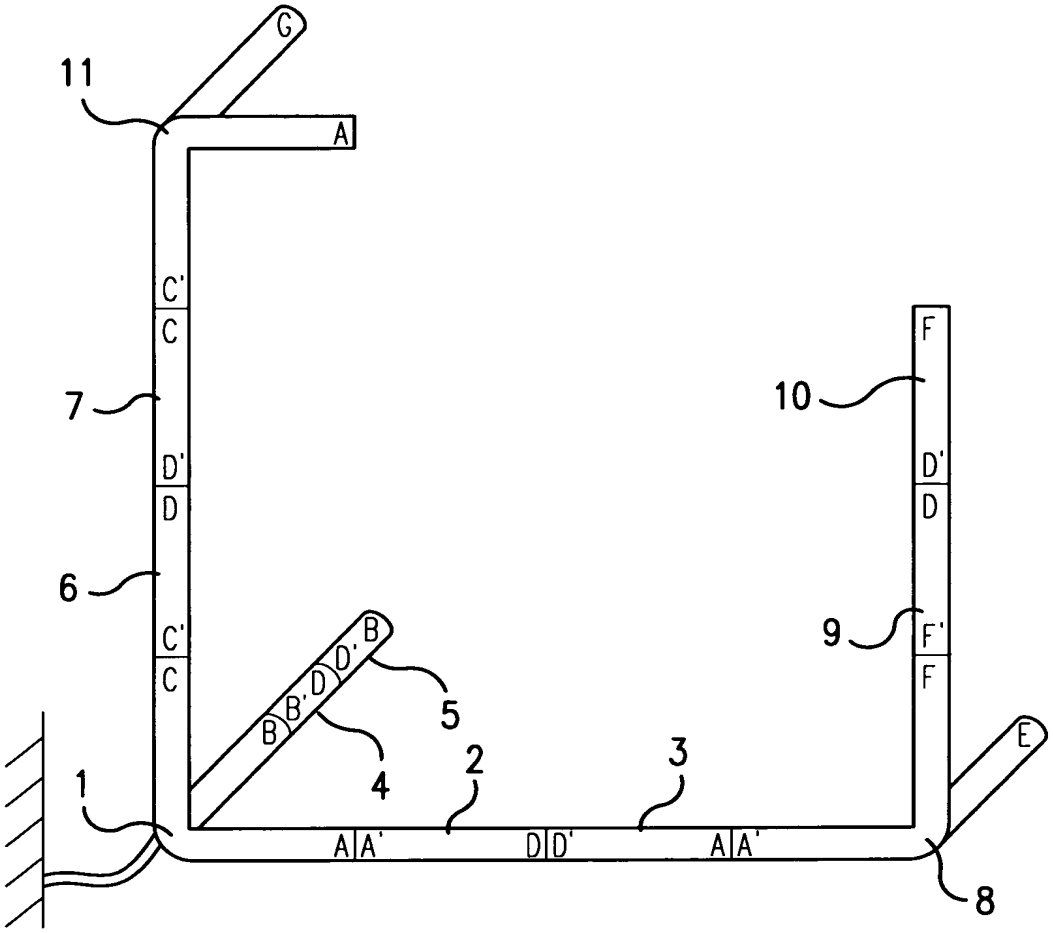


FIG.23AK

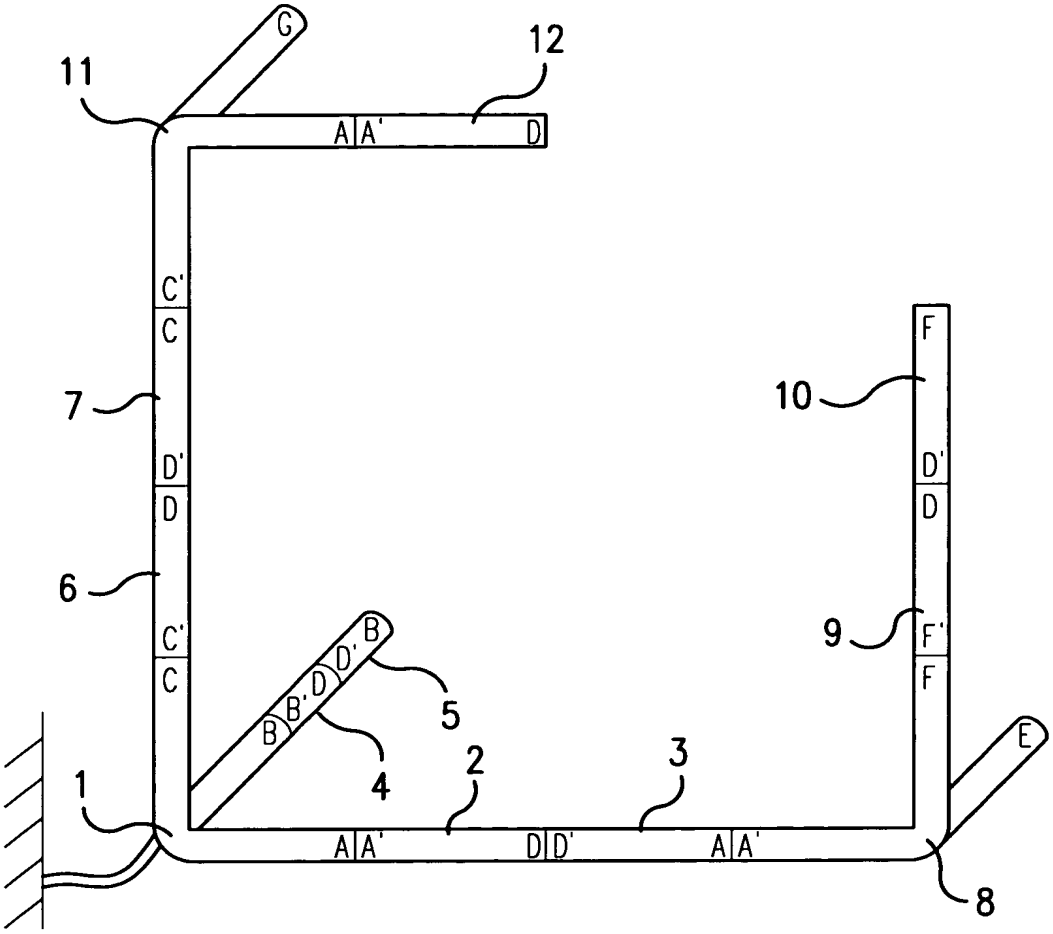


FIG.23AL

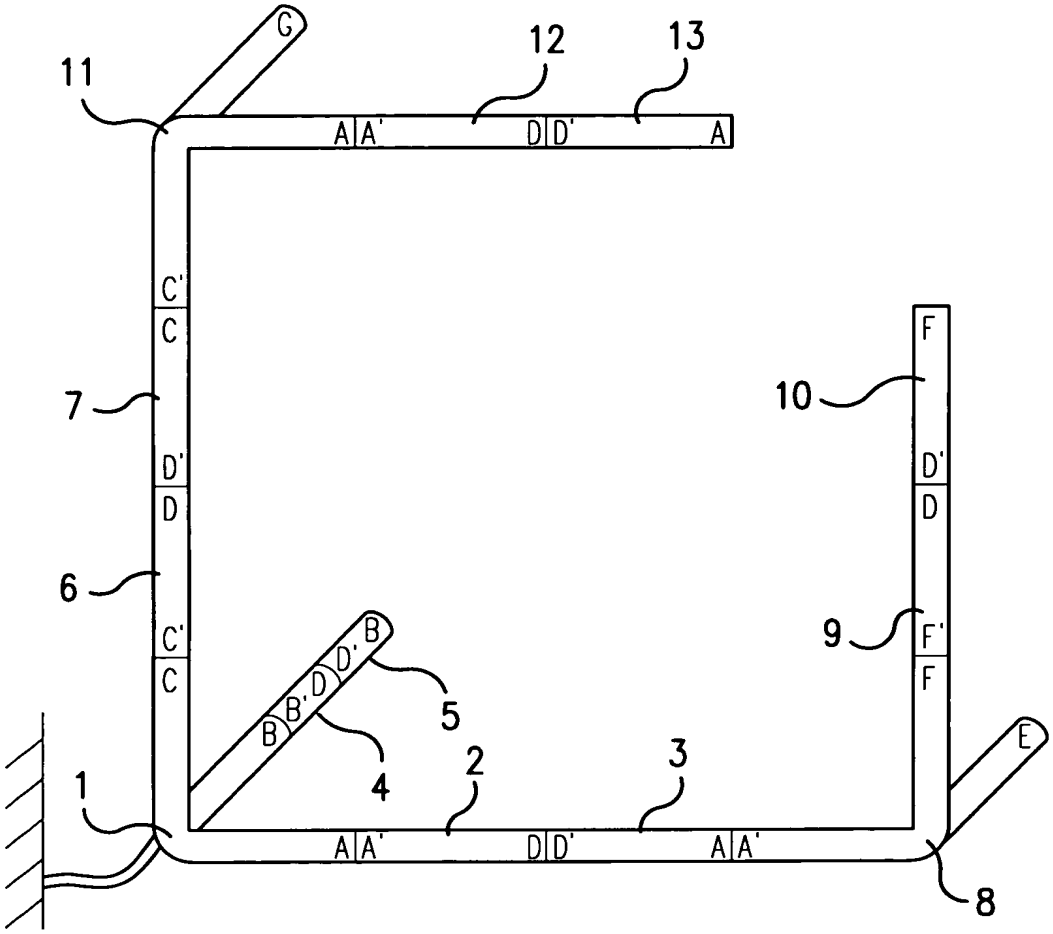


FIG.23AM

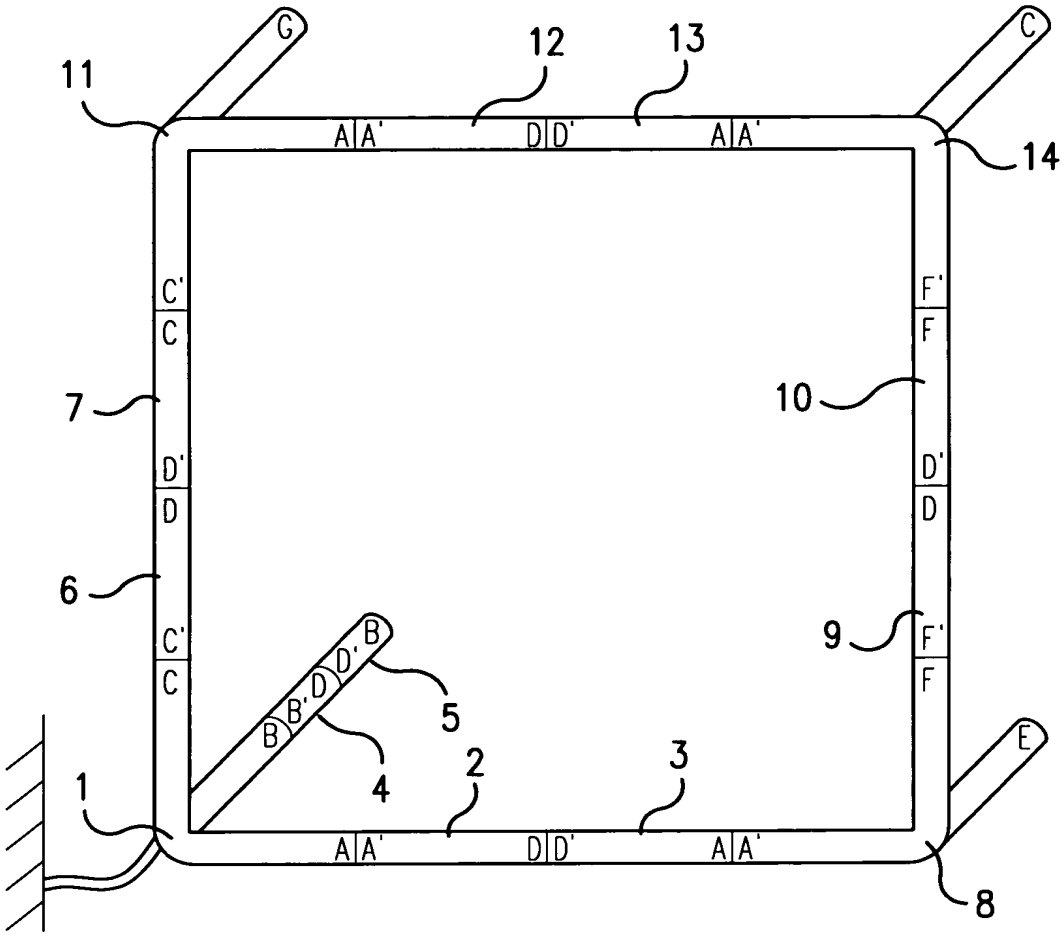


FIG.23AN

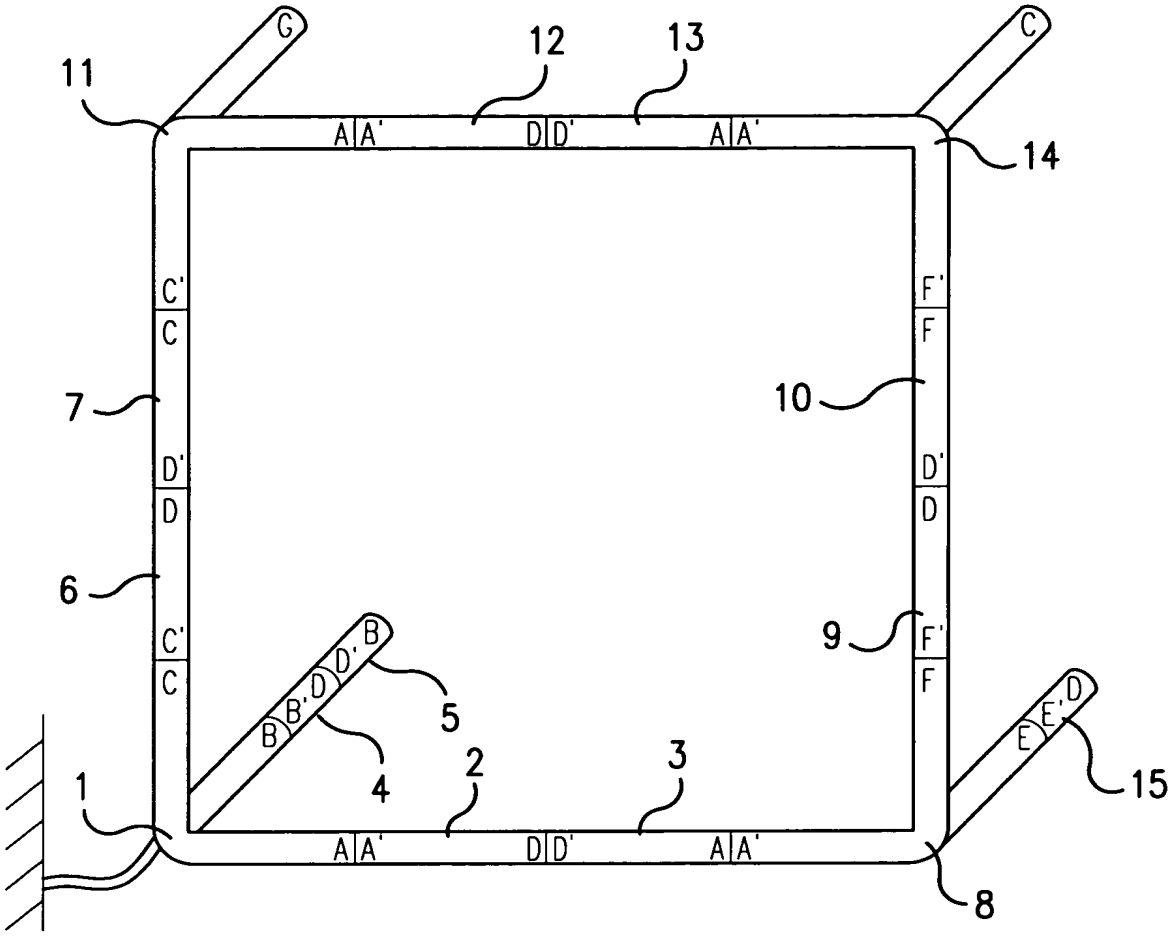

G
C
11
12
13
14
A A' D D' A A'
C'
C
F'
F
7
10
D'
D
6
9
C'
C
F'
F
B
D'
D
B'
B
5
4
2
3
1
A A' D D' A A'
E'
D
E
15
8

FIG.23AO

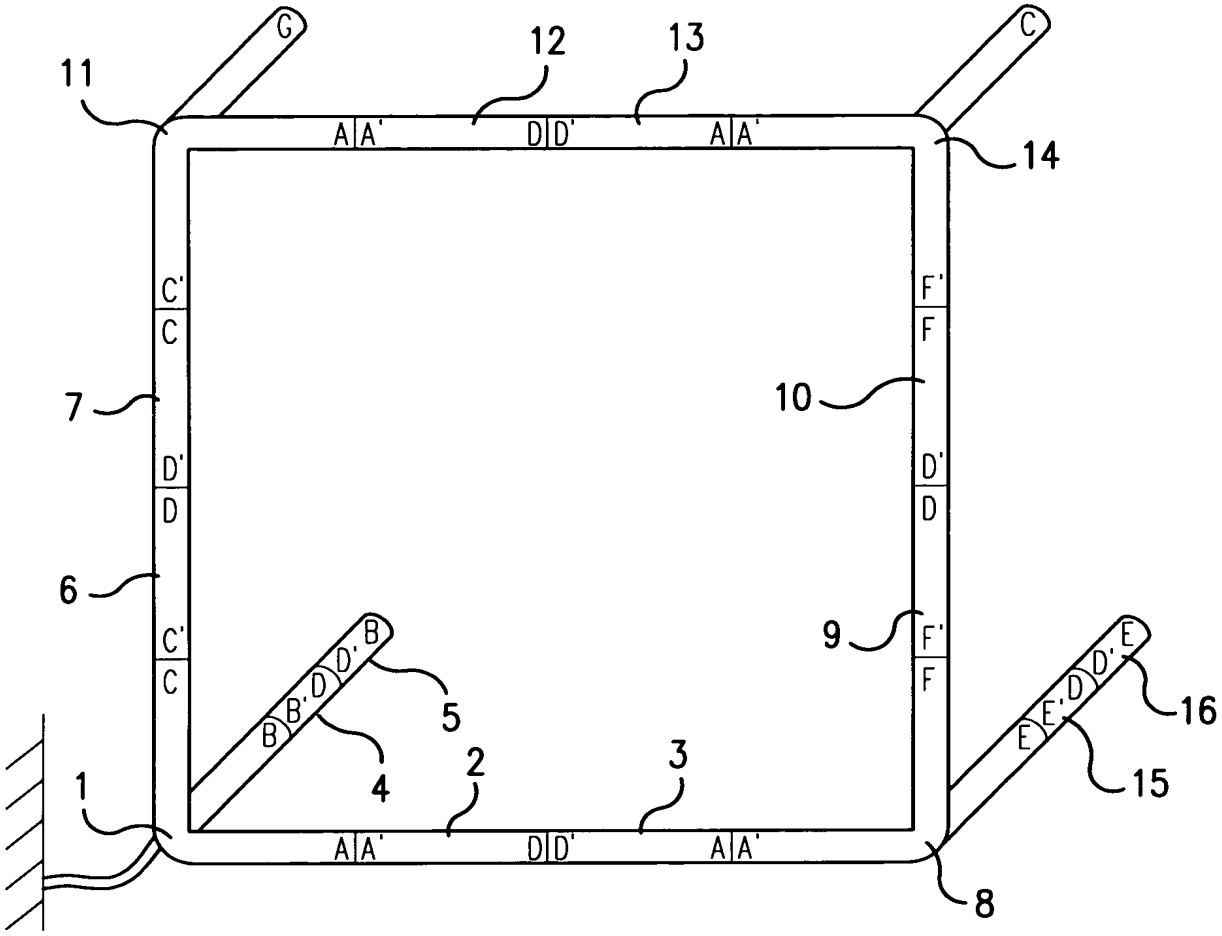
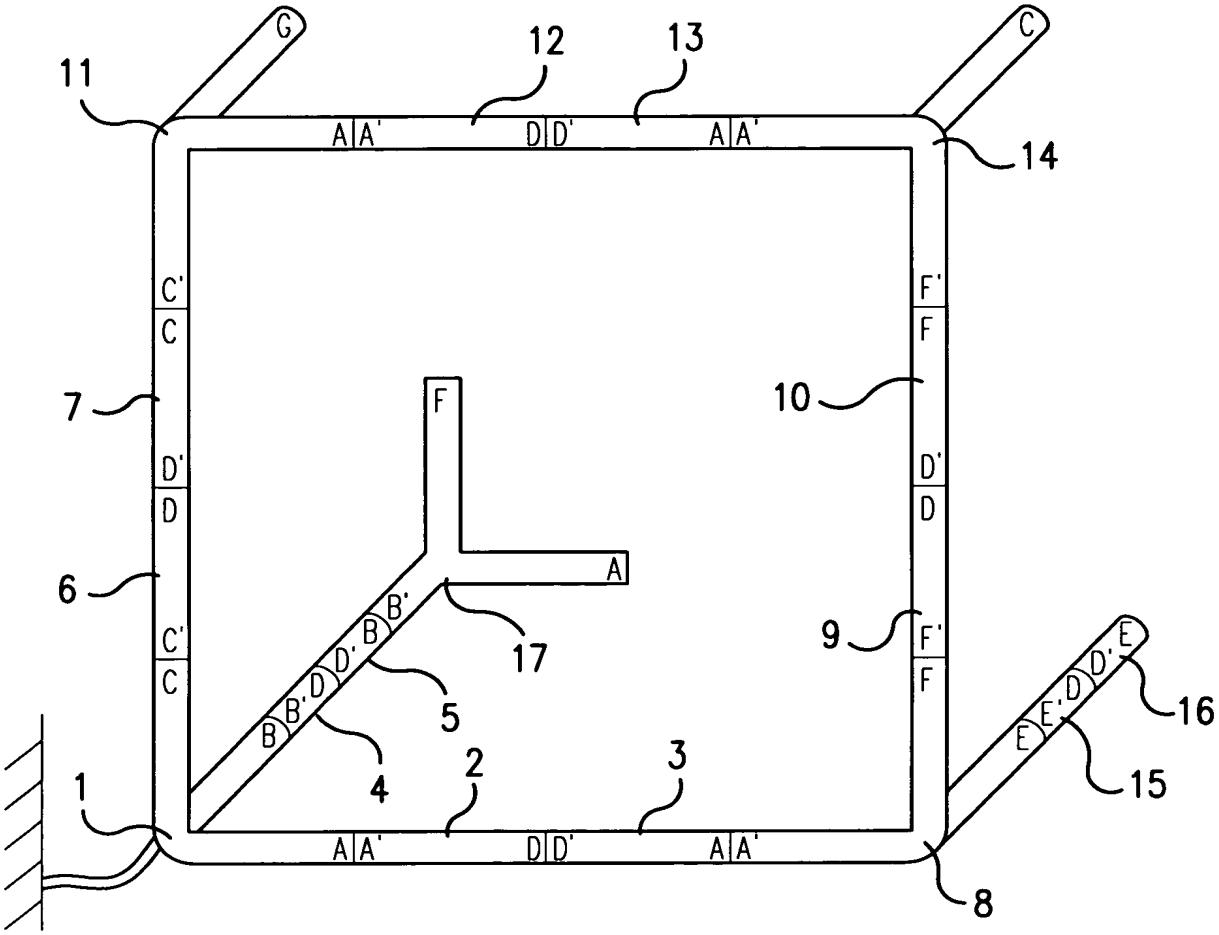

G
C
11
12
13
14
A A' D D' A A'
C'
C
F'
F
7
10
D'
D
6
9
C'
C
F'
F
B
D'
B'
D
5
4
2
3
1
E
D'
E'
D
16
15
E
A A' D D' A A'
8

FIG.23AP


G
C
11
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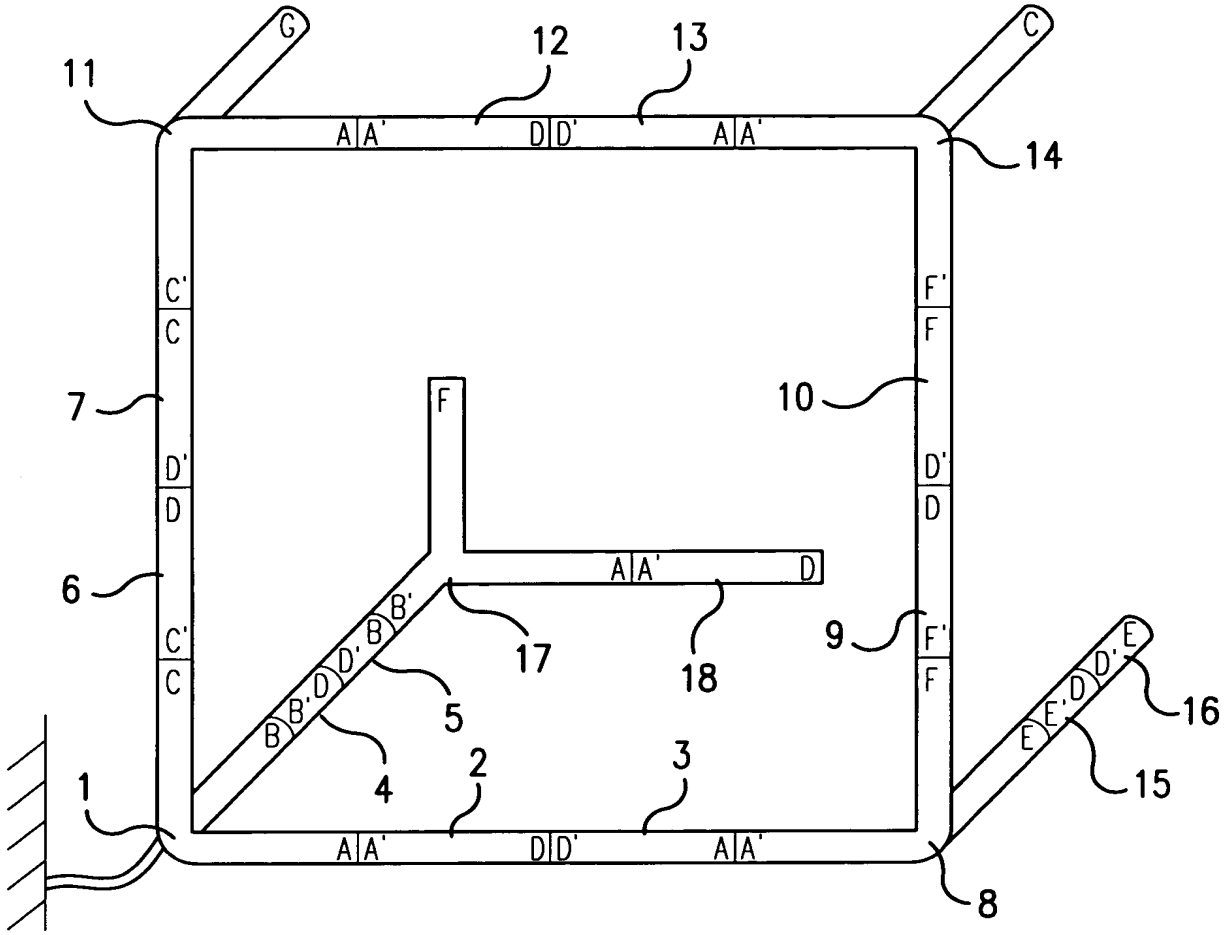
A A' D D' A A'
C'
C
F'
F
7
10
F
D'
D
D'
D
6
A
B'
B
D'
D
B'
B
C'
C
F'
F
9
E
D'
D
E'
E
16
17
5
4
2
3
15
1
A A' D D' A A'
8

FIG.23AQ


G
C
11
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14
A A' D D' A A'
C'
C
F'
F
7
10
F
D'
D
D'
D
6
A A' D
B'
B
D'
D
B'
B
17
18
9
F'
F
C'
C
5
4
2
3
E
D'
E'
D
E
16
15
1
A A' D D' A A'
8

FIG.23AR

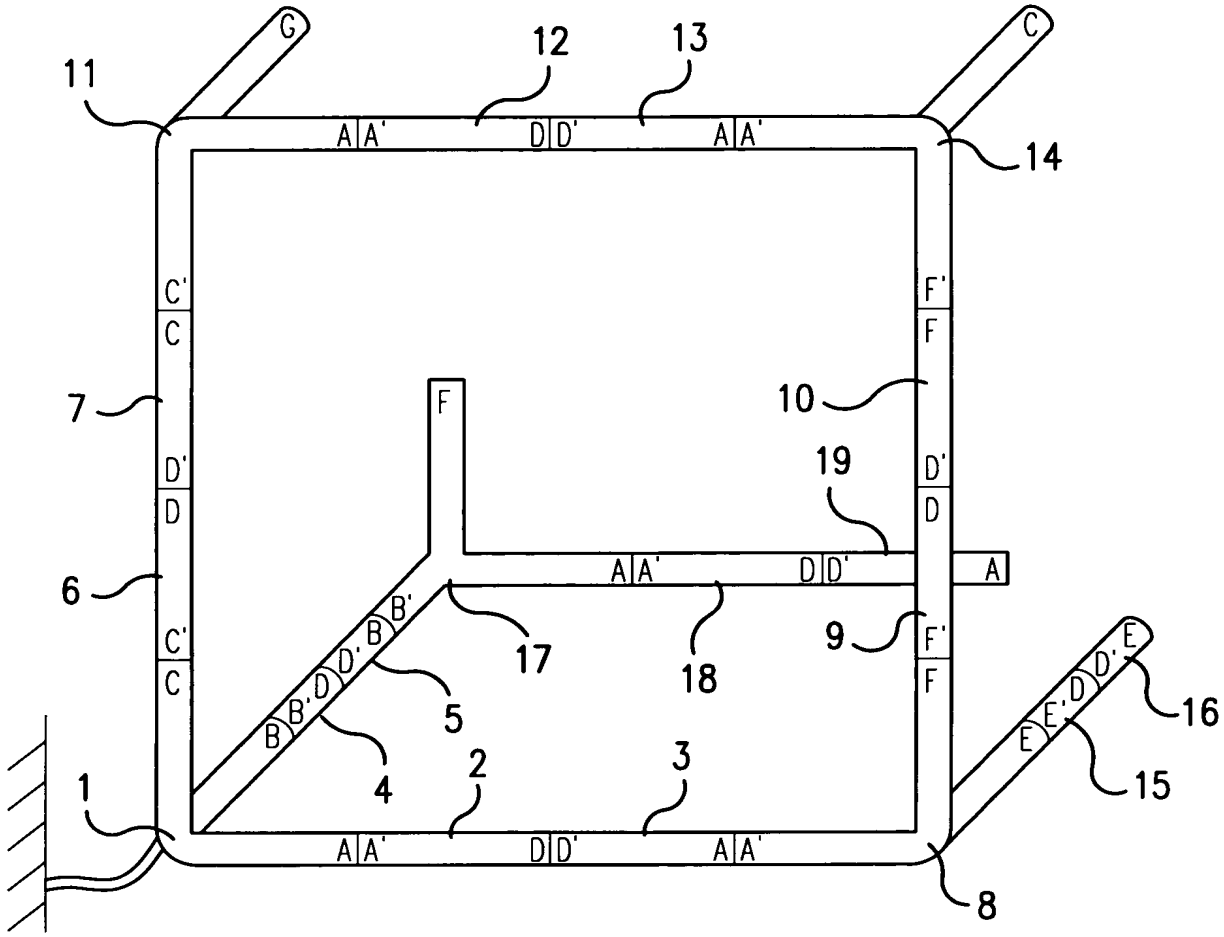

G
C
11
12
13
14
A A' D D' A A'
C'
C
F'
F
7
10
F
19
D'
D
D'
D
6
A A' D D' A
B'
B
D'
D
17
18
9
C'
C
F'
F
E
D'
D
E'
E
16
5
B'
B
4
2
3
15
1
A A' D D' A A'
8

FIG.23AS

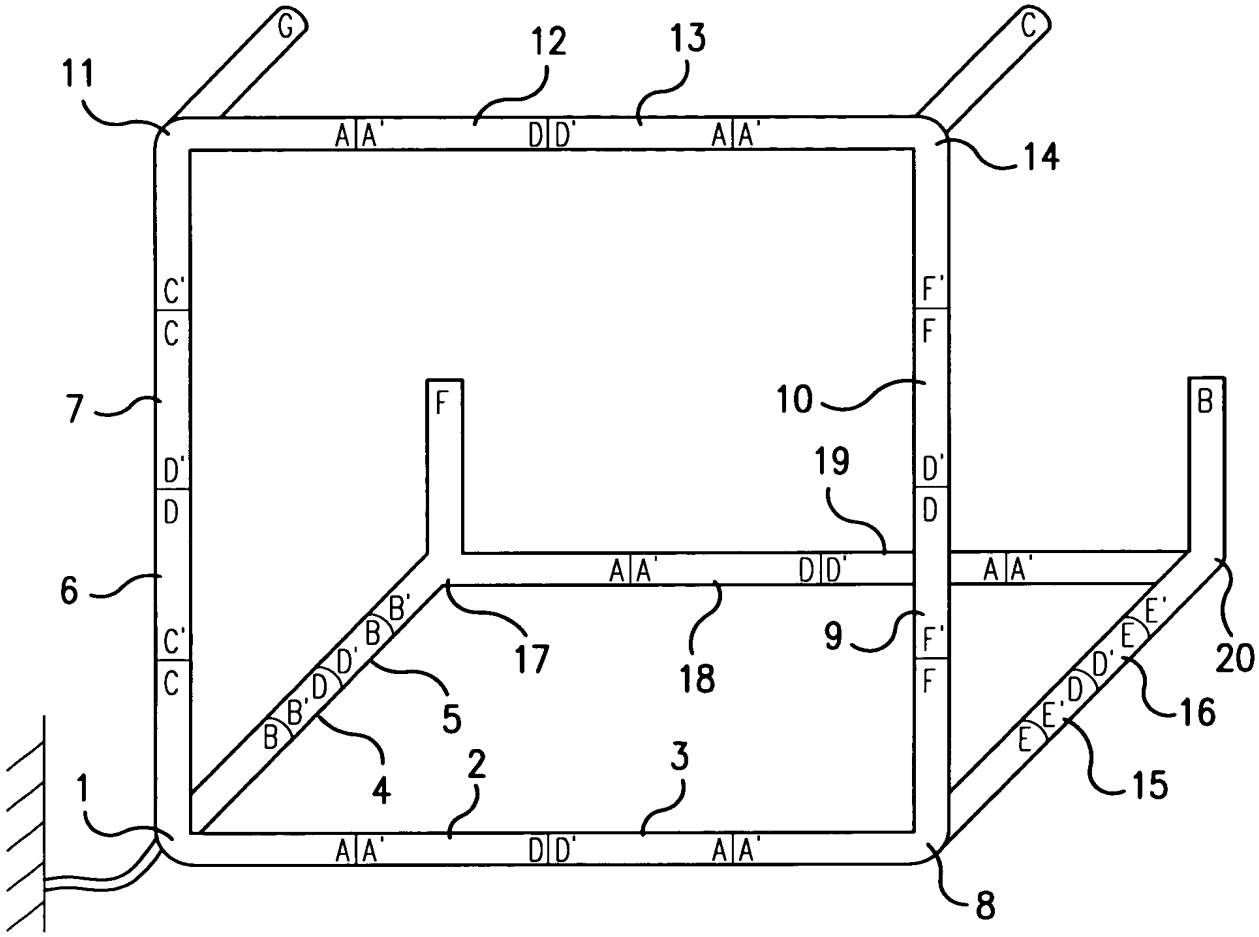

G
C
11
12
13
14
A A' D D' A A'
C'
C
F'
F
7
10
F
B
19
D'
D
6
A A' D D' A A'
C'
C
F'
F
9
17
18
20
B B' D D' B B' E E' D D' E E'
5
4
2
3
16
15
1
A A' D D' A A'
8

FIG.23AT

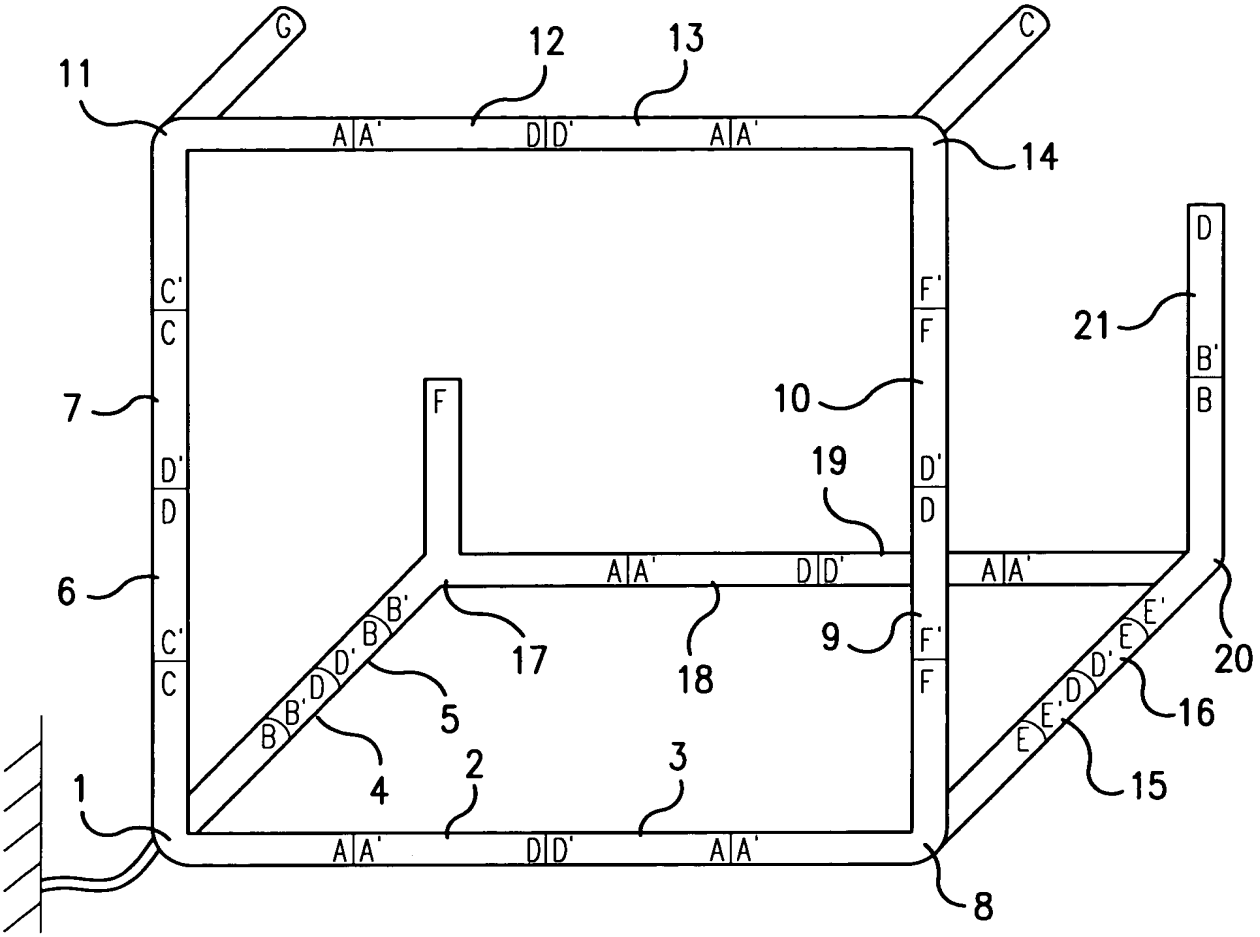
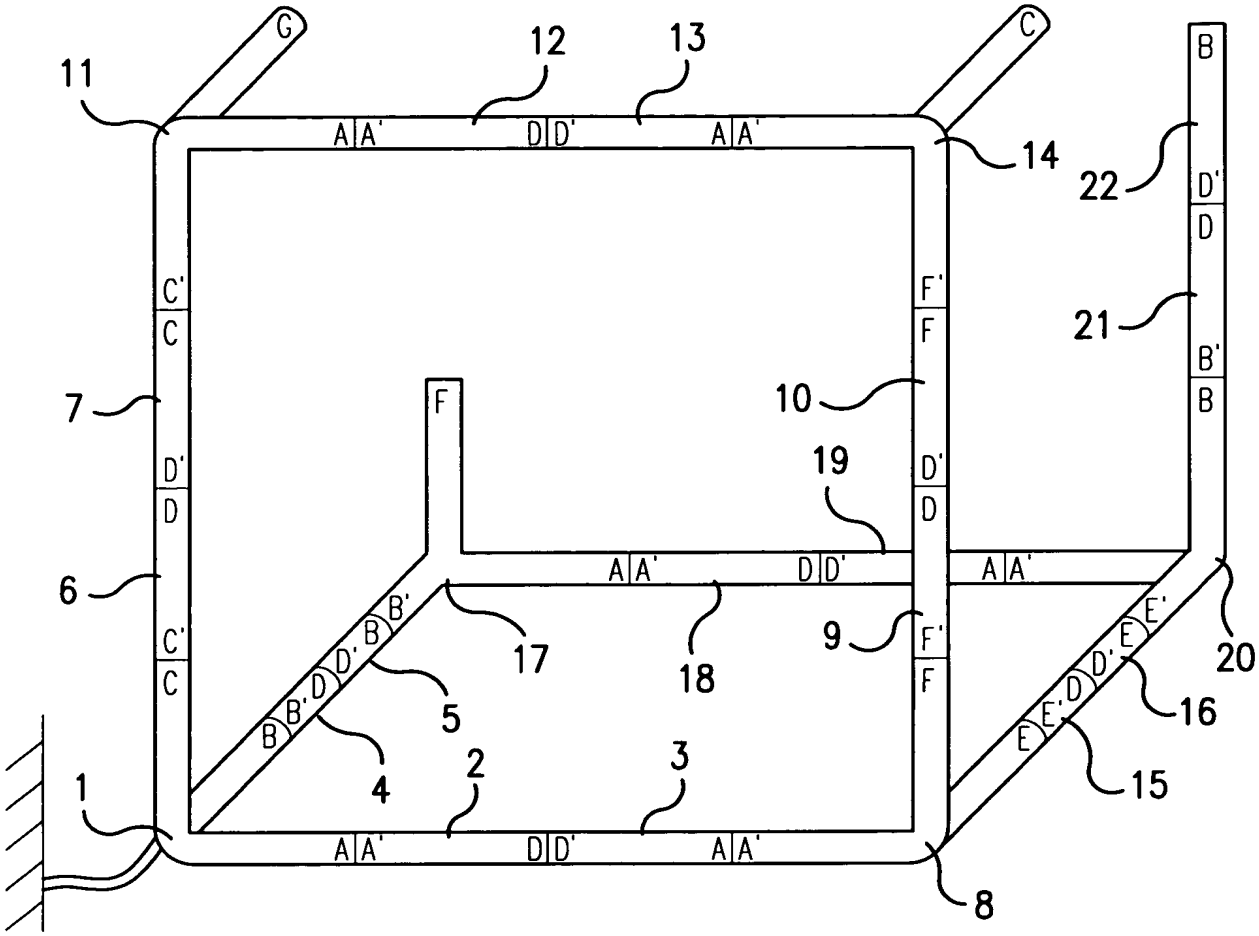

G
C
11
12
13
14
A A' D D' A A'
C'
C
D'
D
F'
F
7
10
F
19
21
D
B'
B
6
A A' D D' A A'
9
17
18
20
5
4
2
3
16
15
1
8

FIG.23AU


G
C
B
11
12
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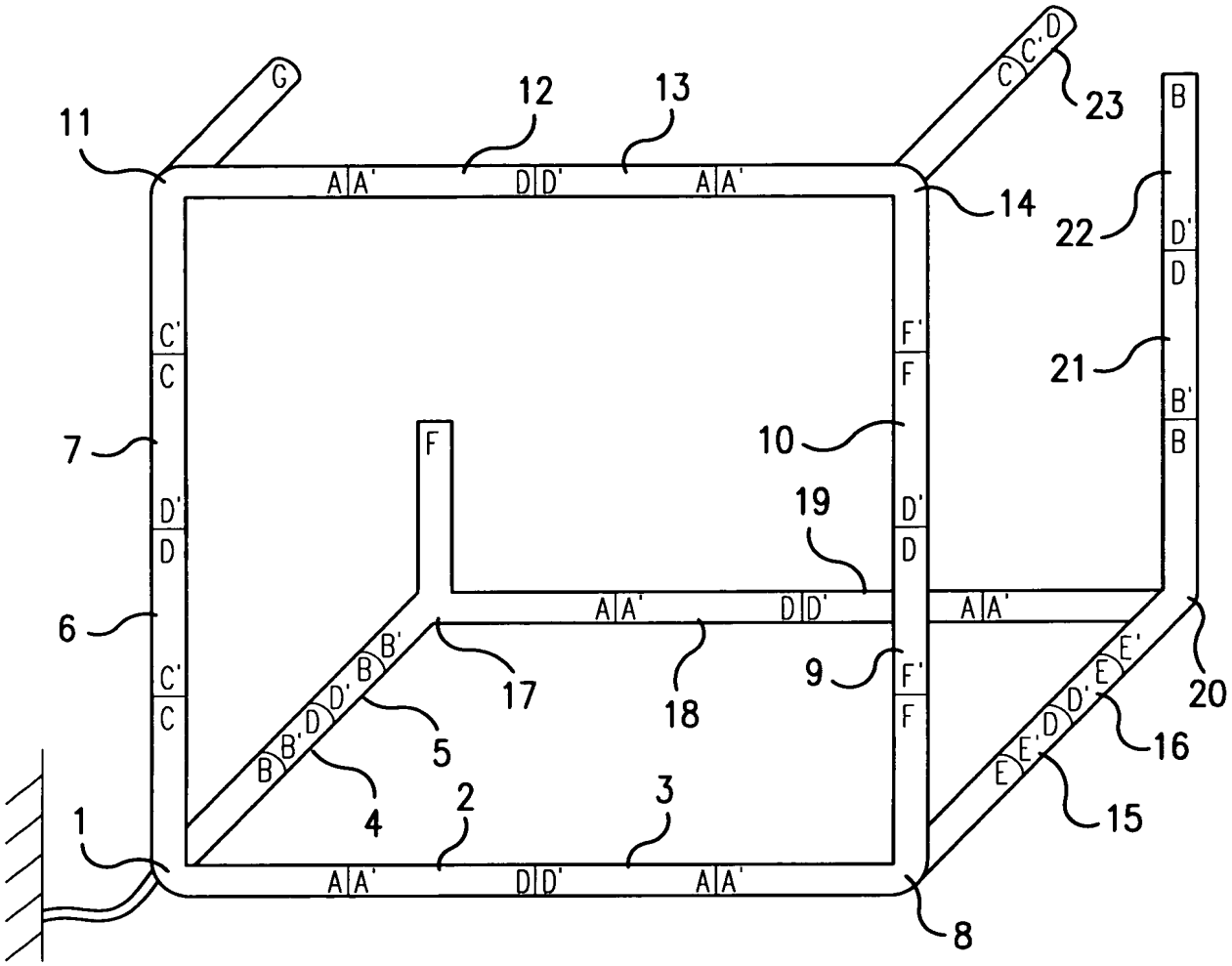
14
22
D'
D
21
B'
B
A A' D D' A A'
C'
C
F'
F
7
10
F
19
D'
D
6
A A' D D' A A'
C'
C
9
F'
F
17
18
20
B'
B
D'
D
5
E'
E
D'
D
16
B'
B
4
E'
E
15
2
3
1
A A' D D' A A'
8

FIG.23AV


11
G
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C
C'
D
D'
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14
22
B
B'
D
D'
21
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F
F'
A
A'
D
D'
17
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5
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16
15
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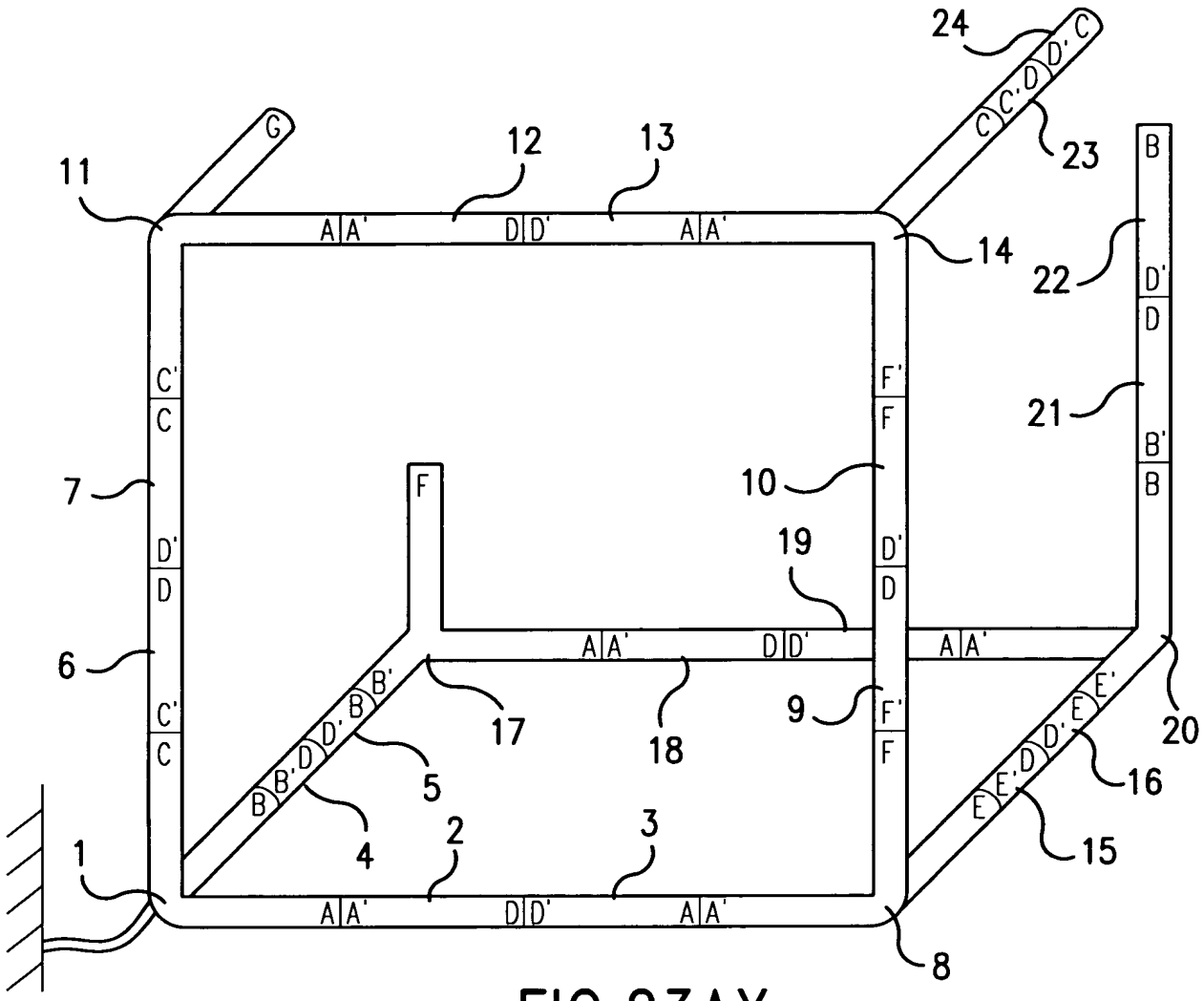
FIG.23AW


24
G
11
12
13
23
14
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21
7
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19
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17
18
9
20
5
4
16
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15
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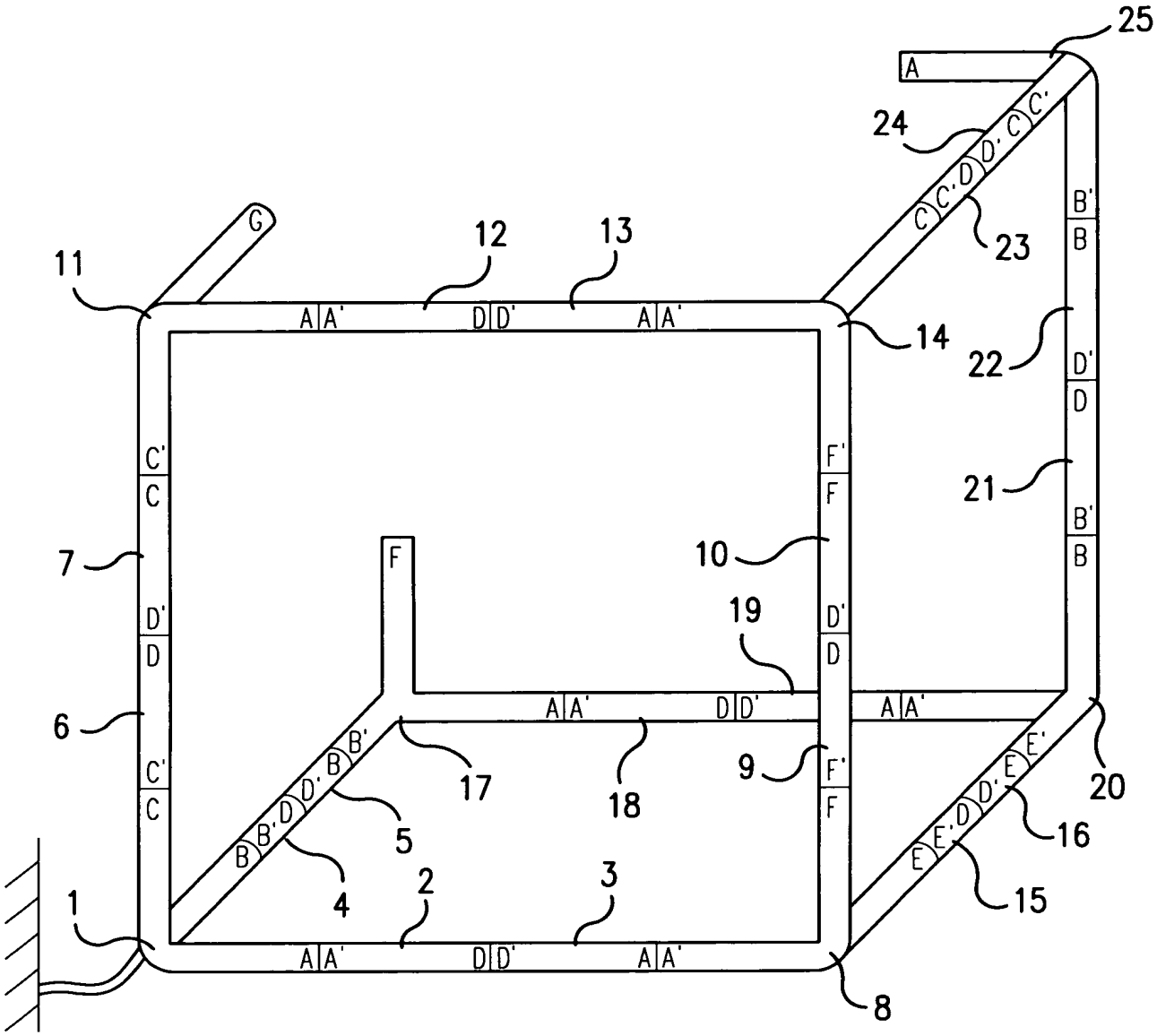
8
A A' D D' A A'
B B' D D' E E'
C C' D D' F F'

FIG.23AX


25
A
24
C'
C
D'
D
C'
C
23
B'
B
G
11
12
13
A A'
D D'
A A'
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22
D'
D
C'
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F'
F
21
B'
B
7
F
10
19
D'
D
6
A A'
D D'
A A'
C'
C
B'
B
D'
D
B'
B
17
18
9
F'
F
20
E'
E
D'
D
16
E'
E
15
5
4
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3
1
A A'
D D'
A A'
8

FIG.23AY

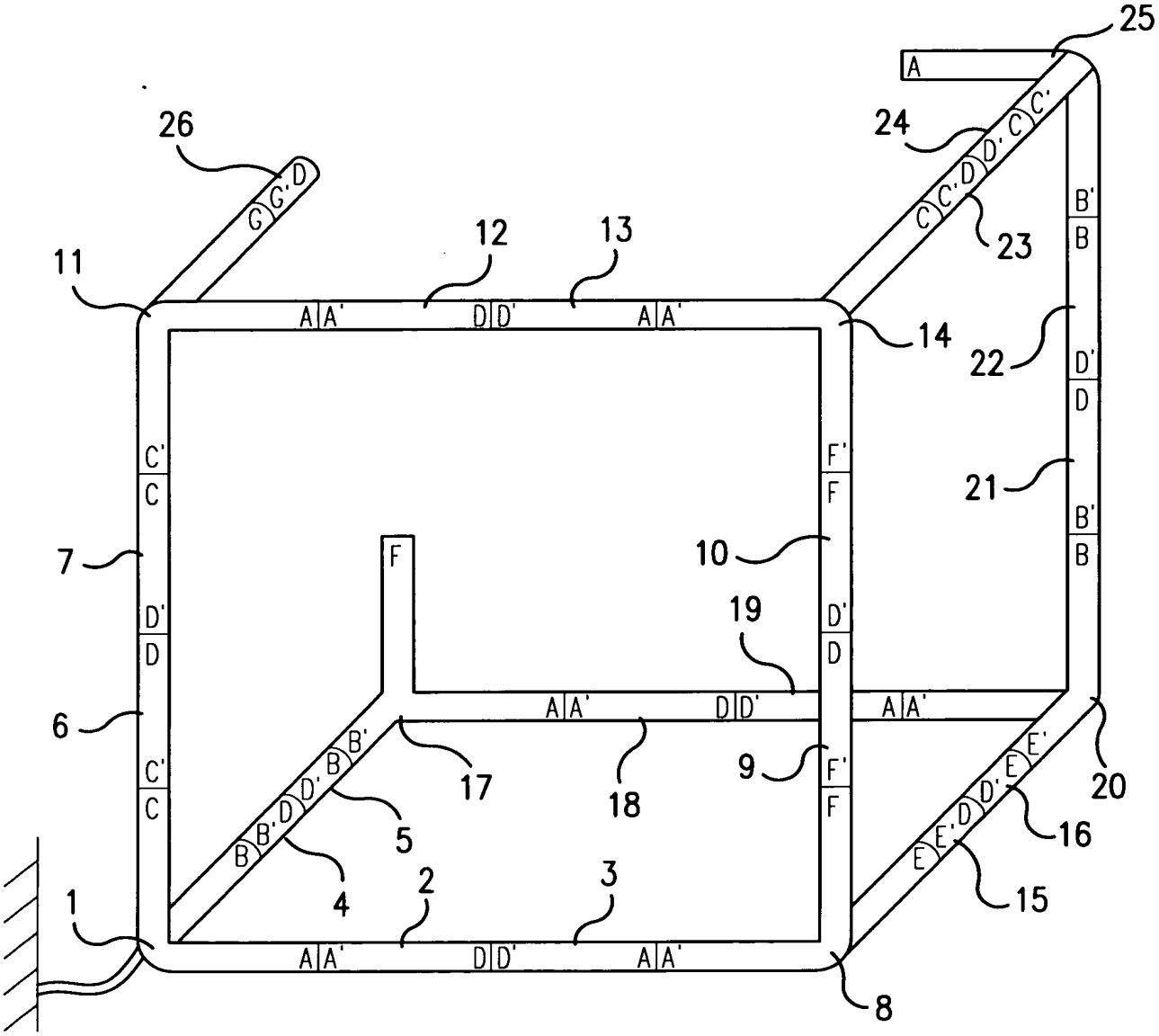

FIG.23AZ

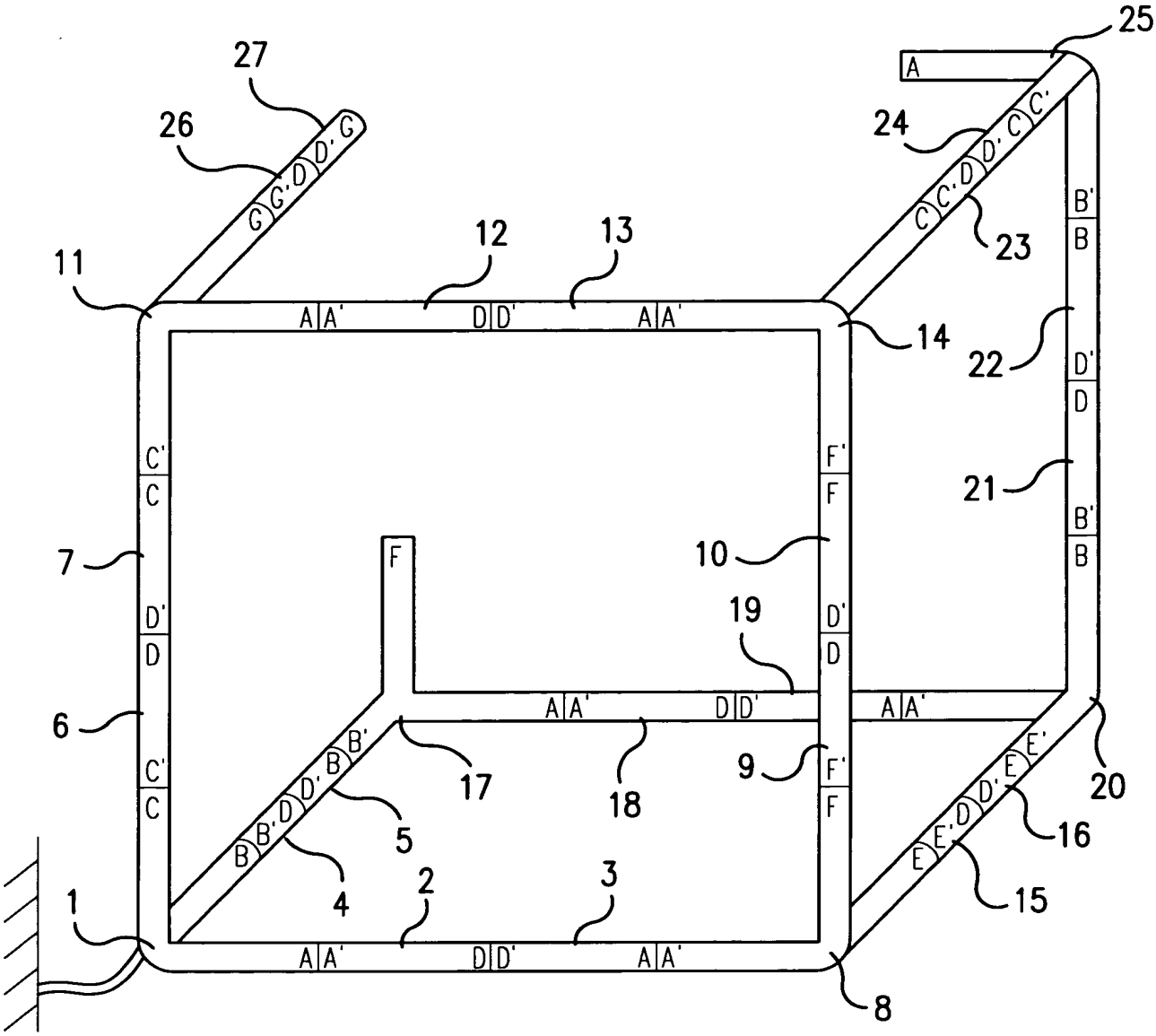
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FIG.23BA

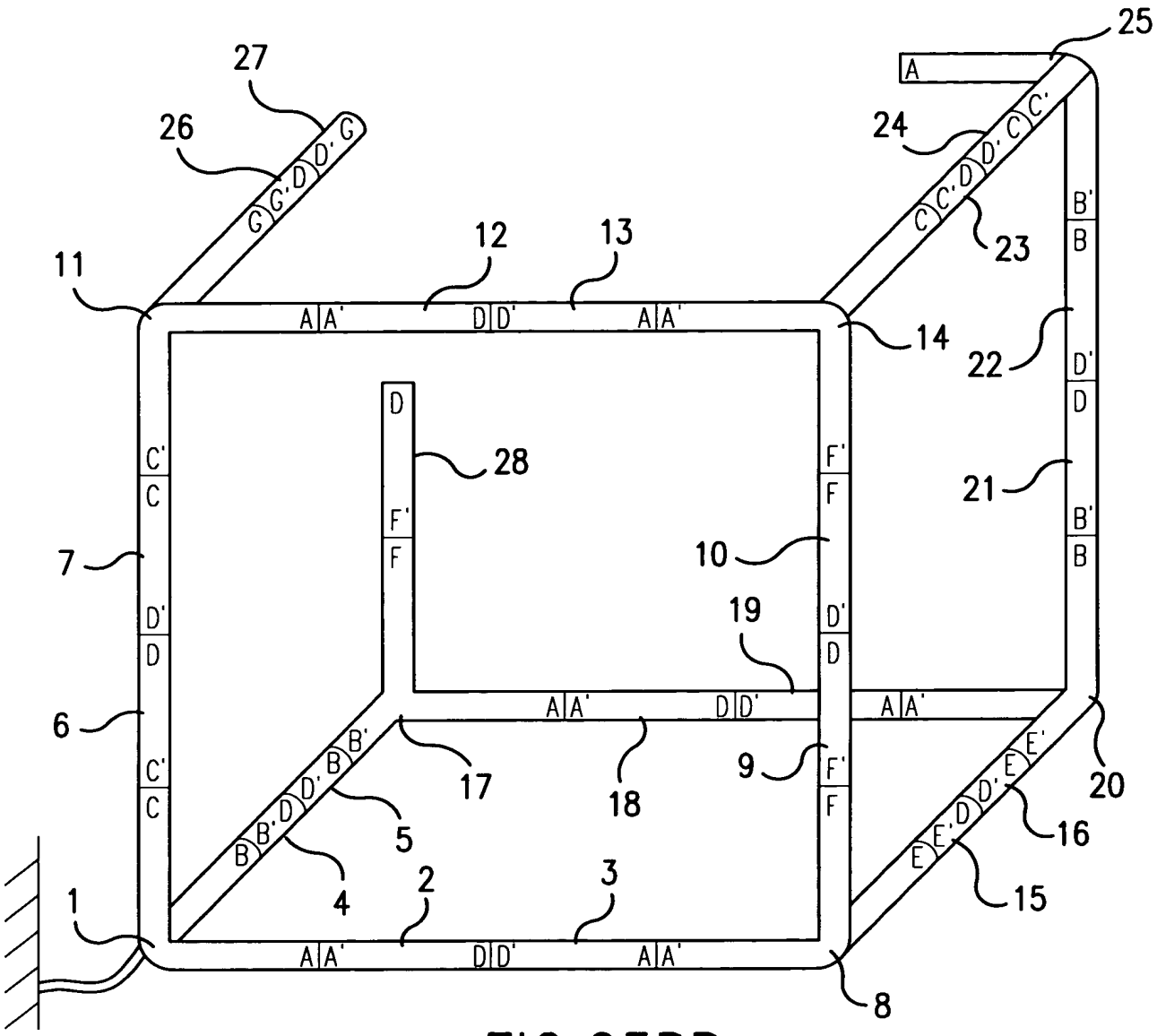

FIG.23BB

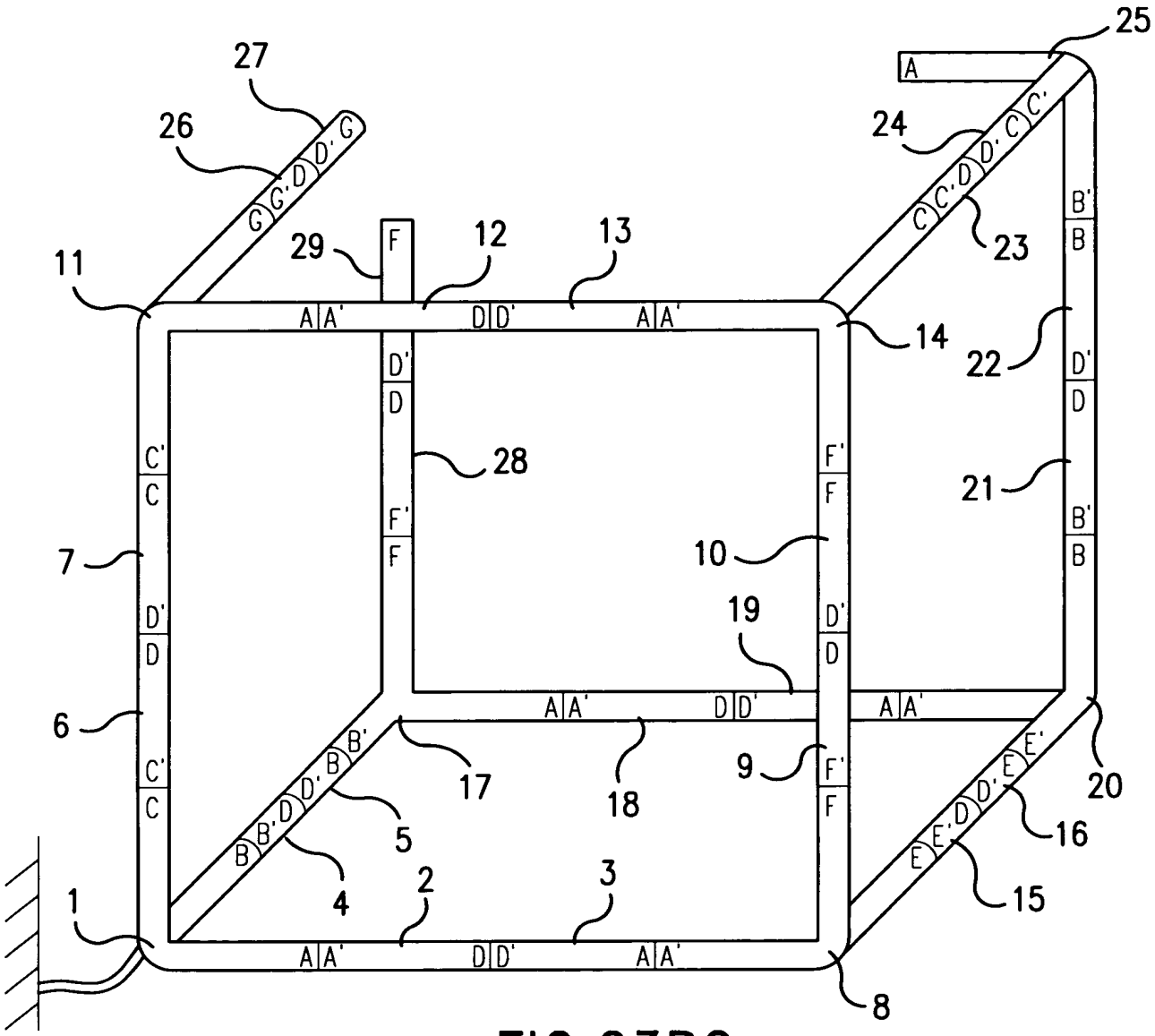

FIG.23BC

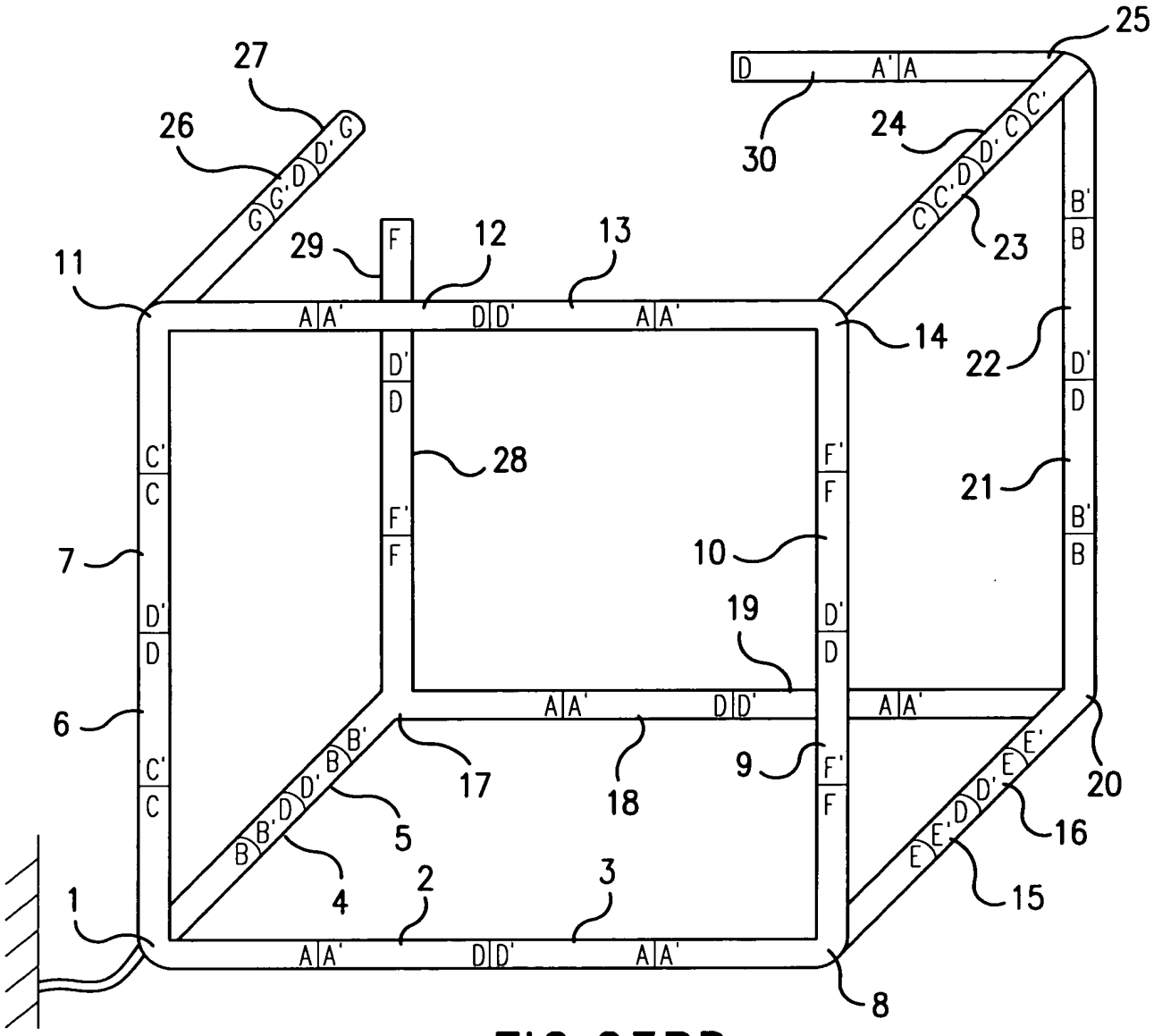
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FIG.23BD

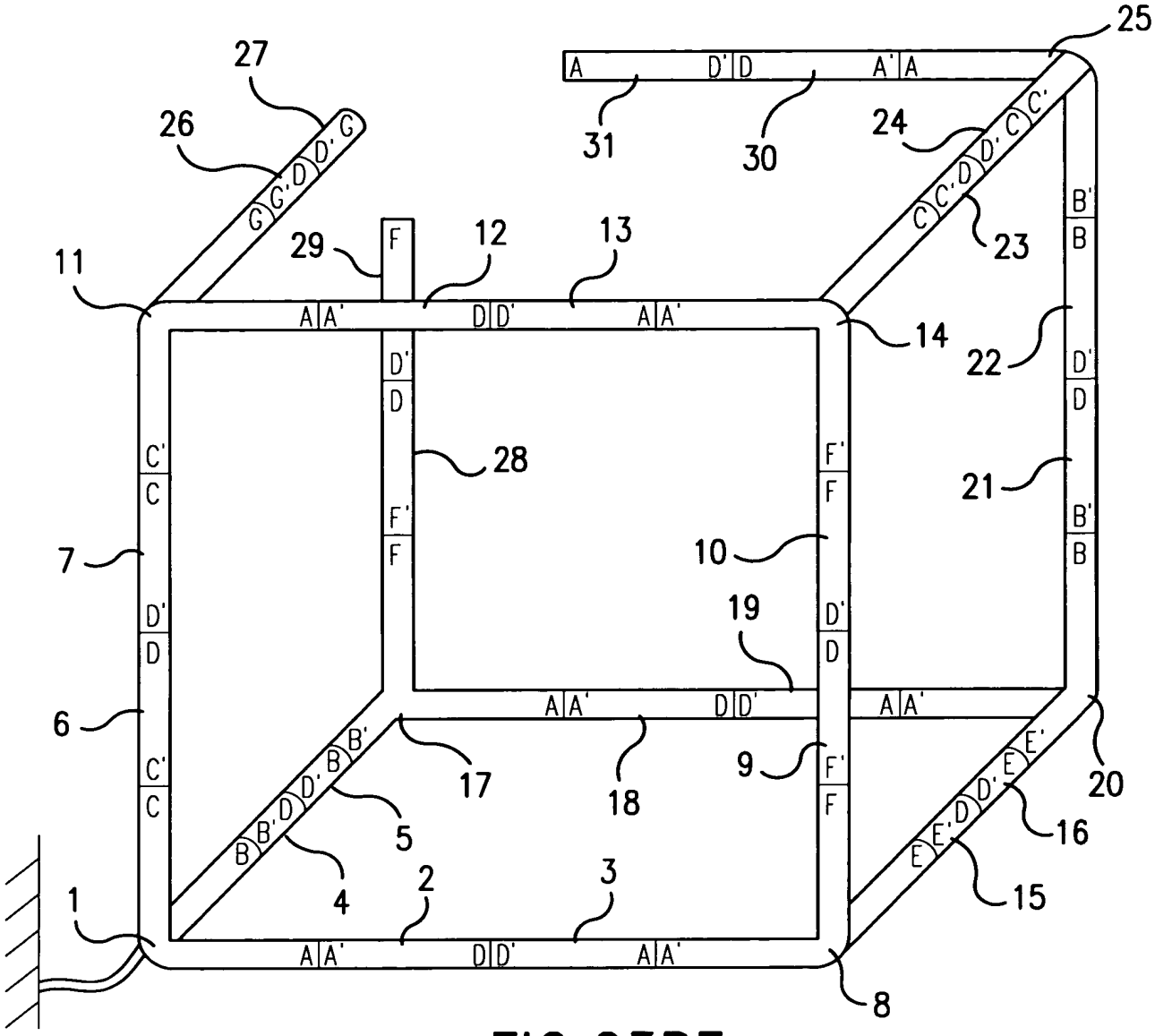
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FIG.23BE

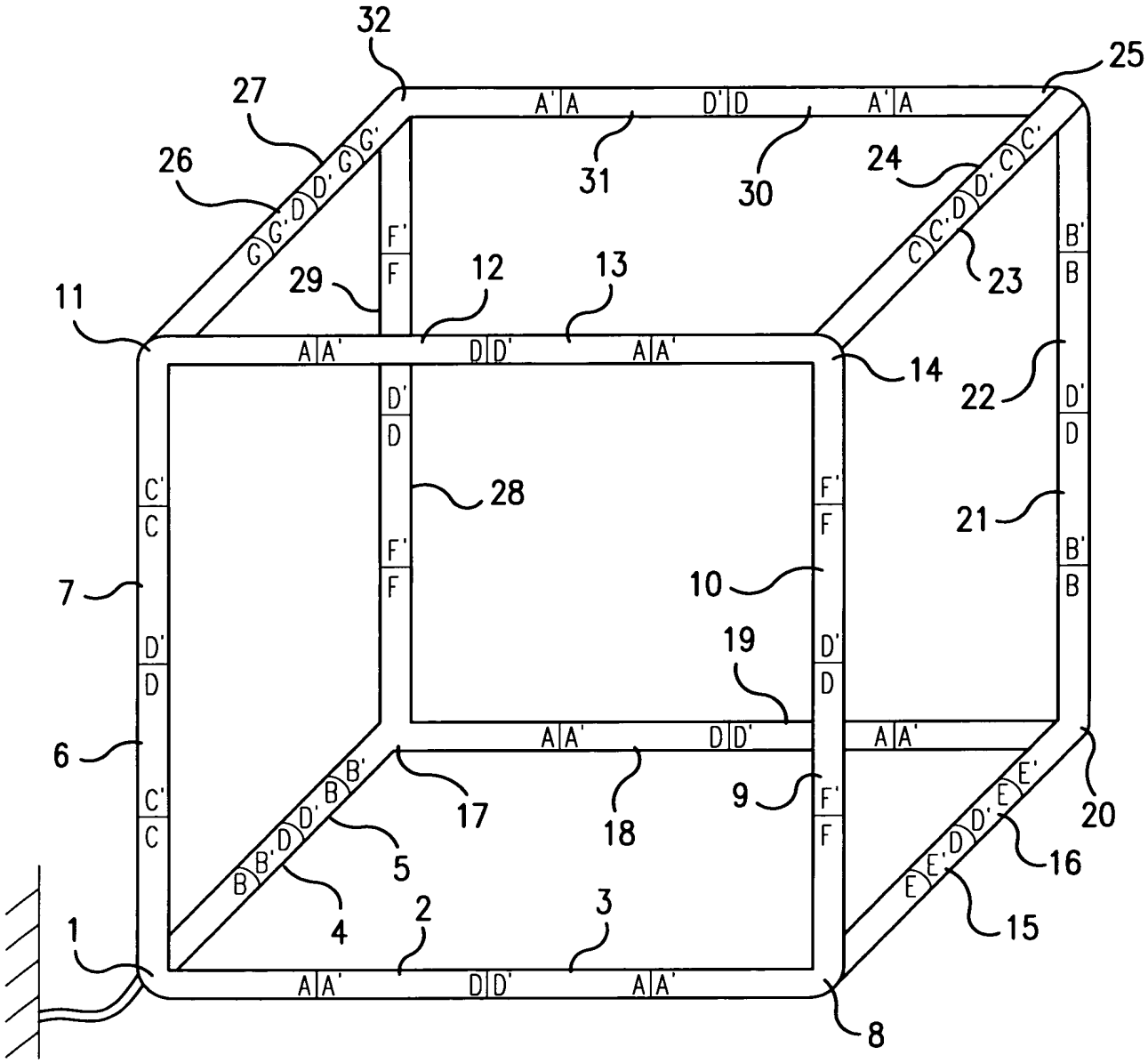
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FIG.23BF